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PART II

FEDERAL REGISTER

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Title 46—SHIPPING

Chapter I—Coast Guard, Department of the Treasury

[CGFR 61–44]

SHIPBOARD CARGO GEAR, POWER-OPERATED INDUSTRIAL TRUCKS AND MISCELLANEOUS AMENDMENTS RESPECTING DANGEROUS CARGOES

The Merchant Marine Council held a public hearing on March 27, 1961, for the purpose of receiving comments, views and data with respect to proposals regarding shipboard cargo gear, power-operated industrial trucks, and the handling of certain dangerous cargoes. The notice of proposed rule making was published in the FEDERAL REGISTER on February 15, 1961 (26 F.R. 1278–1286). The Merchant Marine Council Public Hearing Agenda (CG–249), dated March 27, 1961, set forth the proposed regulations in detail and copies thereof were furnished to all who indicated an interest in the subjects set forth therein. In this Agenda, Item I dealt with "Shipboard Cargo Gear," while Item II dealt with "Power-Operated Industrial Trucks." A large number of comments were received. In response to many requests for additional time to submit additional comments, a second notice of proposed rule making was published in the FEDERAL REGISTER on May 2, 1961 (26 F.R. 3775–3778), granting the additional time requested as well as additional proposals or revisions being considered, which were based in part on comments already considered. All comments with respect to Items I and II submitted were considered, and the Coast Guard is most appreciative of these comments submitted and assistance in drafting revised regulations intended to promote safety on board commercial vessels.

This document is the ninth of a series regarding the regulations and actions considered at the March 27, 1961 Public Hearing and Annual Session of the Merchant Marine Council. This document contains the final actions taken with respect to the proposals in Items I and II. The seventh document in this series contained the miscellaneous amendments to the vessel inspection regulations and was published in the FEDERAL REGISTER of September 30, 1961 (26 F.R. 9253–9304). In this document was a description of the actions taken to date with respect to the various items on the agenda. The eighth document dealt with smoke detecting systems on passenger vessels (Item VIII, portion), and was published in the FEDERAL REGISTER of September 23, 1961 (26 F.R. 8979). Item VI regarding "Bulk Grain Cargoes" (CG–249), (pp. 142–159), is still under consideration.

The proposals in Item I regarding "Shipboard Cargo Gear" as revised are approved. The proposals in Item II regarding "Power-Operated Industrial Trucks" as revised are approved. Most of the regulations were modified in some way and in many instances redesignated. The following table lists the revised regulations as adopted and the source of the proposal to assist those who commented on the proposals in determining changes adopted.

SOURCE OF REGULATIONS

Adopted regulation	*CG–249 (March 27, 1961)*
30.01–5(e)	30.01–5(e)* (II, p. 33).
31.01–1(b)(1)	31.01–1(b)(1) (I, p. 12).
31.10–5(a)(1)	31.10–5(a)(1)* (I, p. 21).
31.10–16	31.01–1(b), 31.10–16 (I, pp. 12, 14).
31.37–1	31.01–1(b), 31.10–16(a) (I pp. 12, 14).
31.37–3	31.10–16 (a)(2), (b)(1), (d)(2)** (I, p. 12).
31.37–5	31.01–1(b) (I, p. 14).
31.37–15	31.10–16(b)(1) (I, p. 14).
31.37–20	31.10–16(b)(2) (I, p. 14).
31.37–25	31.10–16(c) (I, p. 15).
31.37–30	31.10–16(d)** (I, p. 15).
31.37–35	31.10–16(e) (I, p. 16).
31.37–40	31.10–16(f)** (I, p. 17).
31.37–45	31.10–16 (g), (h)** (I, pp. 18, 19).
31.37–50	31.10–16(i) (I, p. 19).
31.37–55	31.10–16(j)* (I, p. 19).
31.37–60	31.10–16(k)* (I, p. 20).
31.37–65	31.10–16(m)* (I, p. 20).
31.37–70	31.10–16(n) (I, p. 20).
31.37–75	31.10–16(o) (I, p. 21).
31.37–80	31.10–16(p)(1) (I, p. 21).
31.37–85	31.10–16(p)(2) (I, p. 21).
35.30–40	35.30–40**.
35.70–1	35.70–1** (II, p. 34).
35.70–3	
35.70–5	35.70–1(c)**.
35.70–7	35.70–5** (II, p. 34).
35.70–10	35.70–10** (II, p. 35).

SOURCE OF REGULATIONS—Continued

Adopted regulation	*CG–249 (March 27, 1961)*
35.70–15	35.70–15** (II, p. 36).
35.70–20	35.70–20 (II, p. 36).
35.70–25	35.70–25** (II, p. 37).
35.70–30	35.70–30 (II, p. 38).
35.70–35	35.70–35 (II, p. 39).
71.25–25 (a)(5), (b), (c), (d), (e).	71.25–25(a) (5), (6)** (I, p. 22).
71.47–1	71.47–1 (I, p. 24).
71.47–3	71.47–1(b), 71.47–15(a)(2)** (I, pp. 24, 26).
71.47–5	71.47–1 (I, p. 24).
71.47–10	71.47–1(c)**.
71.47–15	71.47–5 (I, p. 24).
71.47–20	71.47–5 (I, p. 24).
71.47–25	71.47–10** (I, p. 25).
71.47–30	71.47–15** (I, p. 25).
71.47–35	71.47–20** (I, p. 26).
71.47–40	71.47–25** (I, p. 27).
71.47–45	71.47–30** (I, p. 28).
71.47–50	71.47–35** (I, p. 29).
71.47–55	71.47–40 (I, p. 29).
71.47–60	71.47–45** (I, p. 30).
71.47–65	71.47–50 (I, p. 30).
71.47–70	71.47–55** (I, p. 31).
71.47–75	71.47–60** (I, p. 31).
71.47–80	71.47–65(a) (I, p. 31).
71.47–85	71.47–65(b) (I, p. 31).
71.65–5(b)(13)	71.65–5(b)(13)* (I, p. 31).
78.80–1	78.70–1 (II, p. 45).
78.80–3	
78.80–5	78.70–1(c).
78.80–7	78.70–5** (II, p. 45).
78.80–10	78.70–10** (II, p. 45).
78.80–15	78.70–15** (II, p. 45).
78.80–20	78.70–20** (II, p. 45).
78.80–25	78.70–25* (II, p. 45).
78.80–30	78.70–30** (II, p. 45).
78.80–35	78.70–35** (II, p. 45).
91.25–25 (a)(3), (b), (c), (d), (e).	91.25–25(a) (3), (4)** (I, p. 2).
91.37–1	91.37–1** (I, p. 4).
91.37–3	91.37–1(b), 91.37–15(a)(2)** (I, p. 5).
91.37–5	91.37–1 (I, p. 4).
91.37–10	91.37–1(c)**.
91.37–15	91.37–5 (I, p. 4).
91.37–20	91.37–5 (I, p. 4).
91.37–25	91.37–10** (I, p. 5).
91.37–30	91.37–15** (I, p. 5).
91.37–35	91.37–20** (I, p. 6).
91.37–40	91.37–25** (I, p. 7).
91.37–45	91.37–30** (I, p. 8).
91.37–50	91.37–35** (I, p. 9).
91.37–55	91.37–40 (I, p. 9).
91.37–60	91.37–45** (I, p. 10).
91.37–65	91.37–50* (I, p. 10).
91.37–70	91.37–55** (I, p. 10).
91.37–75	91.37–60** (I, p. 10).
91.37–80	91.37–65(a) (I, p. 11).
91.37–85	91.37–65(b) (I, p. 11).
91.55–5(b)(13)	91.55–5(b)(13)* (I, p. 11).

SOURCE OF REGULATIONS—Continued

Adopted regulation	*CG–249 (March 27, 1961)*
97.70–1	97.70–1 (II, p. 40).
97.70–3	
97.70–5	97.70–1(c) (II, p. 40).
97.70–7	97.70–5** (II, p. 40).
97.70–10	97.70–10** (II, p. 41).
97.70–15	97.70–15** (II, p. 42).
97.70–20	97.70–20** (II, p. 43).
97.70–25	97.70–25* (II, p. 43).
97.70–30	97.70–30** (II, p. 44).
97.70–35	97.70–35** (II, p. 44).
146.04–5	
146.09–15	146.09–15** (II, p. 45).
146.20–3(q)	
146.20–11(y)	
146.20–35	146.20–35 (II, p. 51).
146.20–100	
146.20–200	
146.21–57	146.21–57 (II, p. 51).
146.21–100	
146.22–7	146.22–7 (II, p. 52).
146.22–25(b)(1)	
146.22–100	
146.23–13	146.23–13 (II, p. 52).
146.23–100	
146.24–15(h)	
146.24–20(i)	
146.24–27	146.24–27 (II, p. 52).
146.24–100	
146.25–5	
146.25–43	146.25–43 (II, p. 53).
146.25–55(b)(1)	
146.25–100	
146.25–200	
146.26–35	146.26–35 (II, p. 53).
146.27–35	146.27–35 (II, p. 53).

*Adopted proposed regulation without major change.

**Portions of the proposals were also included in the notice of proposed rule making published in the FEDERAL REGISTER dated May 2, 1961 (26 F.R. 3775–3778).

The provisions of R.S. 4472, as amended (46 U.S.C. 170), require that the land and water regulations governing the transportation of dangerous articles or substances shall be as nearly parallel as practical. The provisions in 46 CFR 146.02–18 and 146.02–19 make the Dangerous Cargo Regulations applicable to all shipments of dangerous cargoes by vessels. The Interstate Commerce Commission in Change Order Nos. 48, 49, 50 and 51 has made changes in the ICC regulations with respect to definitions, descriptive names, classifications, specifications of containers, packing, marking, labeling, and certification for certain dangerous cargoes, which are now in effect for land transportation. Various amendments to the Dangerous Cargo Regulations in 46 CFR Part 146 have been included in this document in order that these regulations governing water transportation of certain dangerous cargoes will be as nearly parallel as practicable with the regulations of the Interstate Commerce Commission which govern the land transportation of the same commodities. For those changes in 46 CFR Part 146, which involved changes other than shippers' requirements, the proposed amendments were considered at the Merchant Marine Council Public Hearing held on March 27, 1961.

The amendments to 46 CFR Part 146, which were not described in the FEDERAL REGISTER of February 15, 1961 (26 F.R. 1280), are considered to be interpretations of law, or revised requirements to agree with existing ICC regulations, or relaxations of previous requirements, or editorial in nature, and it is hereby found that compliance with the Administrative Procedure Act (respecting notice of proposed rule making, public rule making procedure thereon, and effective date requirements thereof) is unnecessary with respect to such changes.

In connection with the revision of requirements for shipboard cargo gear, the acceptances of certificates and/or registers issued by the American Bureau of Shipping, National Cargo Bureau, Inc., The International Cargo Gear Bureau, Inc., and the Universal Cargo Gear Survey and Certification Bureau, Inc., are continued in effect, and the notices of acceptance shall be amended to show references to 46 CFR 31.10–16, 71.25–25, and 91.25–25. Such certificates and/or registers currently in effect as of the date of publication of this document in the FEDERAL REGISTER shall be accepted as prima facie evidence of the condition and suitability of such gear by the Coast Guard when performing inspections of vessels as further provided in 46 CFR Parts 31, 71, and 91. When these non-profit organizations or associations renew or reevaluate conditions with respect to shipboard cargo gear as evidenced by certificates and/or registers, the standards followed for such shipboard cargo gear shall be reflected in the certificates by also indicating compliance with the standards for shipboard cargo gear as set forth in the "Convention Concerning the Protection Against Accidents of Workers Employed in Loading or Unloading Ships" (revised) (International Labor Organization Convention No. 32).

By virtue of the authority vested in me as Commandant, United States Coast Guard, by Treasury Department Orders 120, dated July 31, 1950 (15 F.R. 6521), 167–9, dated August 3, 1954 (19 F.R. 5915), 167–14, dated November 26, 1954 (19 F.R. 8026), 167–20, dated June 18, 1956 (21 F.R. 4894), CGFR 56–28, dated July 24, 1956 (21 F.R. 5659), and 167–38, dated October 26, 1959 (24 F.R. 8857), the following actions are ordered:

1. The vessel inspection regulations shall be amended in accordance with the changes in this document.

2. The regulations in this document shall become effective on and after the date of publication in the FEDERAL REGISTER and may be complied with in lieu of existing requirements, and compliance therewith shall be in accordance with the conditions in paragraph 3 for shipboard cargo gear and the conditions in paragraph 4 for power-operated industrial trucks and their use on board vessels.

3. There shall be full compliance with the shipboard cargo gear requirements in this document as follows:

a. For new vessels at the completion of the first Coast Guard inspection for certification on or after January 1, 1962.

b. For existing vessels at the completion of the Coast Guard inspection for certification at the first annual or biennial inspection for certification made on or after January 1, 1963 (all inspected and certificated U.S. flag passenger vessels will be in full compliance by December 31, 1963 and all U.S. flag tank vessels and dry cargo vessels will be in full compliance by December 31, 1964): *Provided,* That on an individual vessel basis the owner, master or agent may apply in writing for an extension of time to the Commandant who may authorize an extension upon such terms and conditions as he deems necessary.

4. There shall be full compliance attained with respect to requirements for power-operated industrial trucks and for vessels using such trucks as follows:

a. Where both the power-operated industrial truck and the vessel are in full compliance with the requirements in this document, no prior specific approval of the Commandant will be required; however, any variation from the requirements in the regulations will require a prior specific approval of the Commandant.

b. With respect to tank vessels, both the power-operated industrial trucks and the vessels on which used shall be in full compliance with the requirements in 46 CFR Part 35 prior to the use of such trucks on the vessels and any variation from these requirements requires the prior specific approval of the Commandant; however, vessels already carrying power-operated industrial trucks under Coast Guard permits are in substantial compliance with these requirements, but such trucks must be in full compliance with the safety features applicable thereto not later than July 1, 1963.

c. With respect to vessels carrying dangerous or hazardous articles described in 46 CFR Part 146 in this document, both the power-operated industrial trucks and the vessels on which used shall be in full compliance with the applicable requirements in 46 CFR Parts 78, 97 and 146 prior to the use of such trucks on board such vessels and any variation from these requirements requires the prior specific approval of the Commandant.

d. For dry cargo vessels not carrying dangerous or hazardous articles described in 46 CFR Part 146 in this document the applicable ventilation requirements in 46 CFR Part 97 shall be met and power-operated industrial trucks in safe operating condition may be used immediately on such vessels in those spaces not containing such dangerous or hazardous cargoes. The minimum safety features required for all power-operated industrial trucks must be installed on these trucks at the earliest opportunity and in all cases not later than July 1, 1963: *Provided,* That on an individual vessel basis the owner, master or agent may apply in writing for an extension of time to the Commandant who may authorize an extension upon such terms and conditions as he deems necessary.

SUBCHAPTER D—TANK VESSELS

PART 30—GENERAL PROVISIONS

Subpart 30.01—Administration

1. Section 30.01–5(e) is amended by revising the first sentence only to read as follows:

§ 30.01–5 Application of regulations—TB/ALL.

* * * * *

(e) This subchapter shall be applicable to all foreign flag vessels indicated in Column 3 of Table 30.01–5(d) while in the navigable waters over which the United States has jurisdiction or while undergoing repairs involving fire-producing operations in a port or place in the United States including its territories and possessions insofar as meeting the general intent of the special operating requirements set forth in § 35.01–1 and the safety and cargo handling requirements set forth in Subparts 35.30, 35.35 and 35.70 of this subchapter. * * *

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

PART 31—INSPECTION AND CERTIFICATION

Subpart 31.01—General

1. Section 31.01–1(b) is amended by adding at the end thereof a new subparagraph (1) reading as follows:

§ 31.01–1 Inspections required—TB/ALL.

* * * * *

(b) * * *

(1) See § 31.10–16 and Subpart 31.37 for the required inspection and certification of cargo gear.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

Subpart 31.10—Inspections

2. Section 31.10–5(a) is amended by adding at the end thereof a new subparagraph (1) reading as follows:

§ 31.10–5 Inspection of new tank vessels—TB/ALL.

(a) *Plans.* * * *

(1) On and after January 1, 1962, the plans and specifications shall include the arrangement of the cargo gear. The principal details of the gear and the safe working load for each component part shall be shown. (See § 31.10–16 and Subpart 31.37 for applicable requirements.)

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

3. Subpart 31.10 is amended by inserting after § 31.10–15 a new § 31.10–16 reading as follows:

§ 31.10–16 Inspection and certification of cargo gear—TB/ALL.

(a) An inspection of the cargo gear shall be required. The inspection may consist of tests and examinations to determine the condition and suitability of the cargo gear. Current valid certificates and registers of cargo gear, issued by recognized nonprofit organizations or associations approved by the Commandant may be accepted as prima facie evidence of the condition and suitability of the cargo gear. Cargo gear certificates and registers will not be issued by the Coast Guard.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conducted;

(2) Show the dates on which the tests and examinations were conducted; and,

(3) Indicate that the cargo gear therein described complies with standards equal to or exceeding those set forth in Subpart 31.37.

(c) Competent persons for the purposes of this section and Subpart 31.37 are:

(1) Coast Guard marine inspectors;

(2) Surveyors of the organizations or associations approved by the Commandant;

(3) Such other persons as are authorized by the regulations in Subpart 31.37 as may be required; and,

(4) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, hooks, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.

(e) It is the responsibility of the master to have a ship's officer inspect cargo gear when required by Subpart 31.37. For those inspected vessels which do not have valid cargo gear certificates and registers as provided by this section, such vessels will be required to have their shipboard cargo gear undergo tests and inspections in accordance with the provisions of Subpart 31.37.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

Subpart 31.37—Inspection of Cargo Gear

4. Part 31 is amended by inserting after Subpart 31.35 a new Subpart 31.37 entitled "Inspection of Cargo Gear," consisting of §§ 31.37–1 to 31.37–85, inclusive, which reads as follows:

Sec.

31.37–1 When made—TB/ALL.
31.37–3 Definitions of terms and words used in this subpart—TB/ALL.
31.37–5 Tests and examinations of shipboard cargo gear—TB/ALL.
31.37–15 Cargo gear plans required when plans are not approved by a classification society—TB/ALL.
31.37–20 Cargo gear plans approved by a classification society—TB/ALL.
31.37–25 Factors of safety—TB/ALL.
31.37–30 Loose gear certificates and tests—TB/ALL.
31.37–35 Test and certification of wire rope—TB/ALL.
31.37–40 Proof test of cargo gear as a unit—TB/ALL.
31.37–45 Marking of booms and cranes—TB/ALL.
31.37–50 Use of wire rope and chains—TB/ALL.
31.37–55 Annealing—TB/ALL.
31.37–60 Additions to gear—TB/ALL.
31.37–65 Alterations, renewals, or repairs of cargo gear—TB/ALL.
31.37–70 Responsibility of ship's officer for inspection of cargo gear—TB/ALL.
31.37–75 Records regarding cargo gear—TB/ALL.
31.37–80 Advance notice that cargo gear testing is desired—TB/ALL.
31.37–85 Responsibility for conducting required tests and examinations—TB/ALL.

AUTHORITY: §§ 31.37–1 to 31.37–85 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.

§ 31.37–1 When made—TB/ALL.

(a) The specific tests and examinations shall be made at the intervals stated in the regulations in this subpart.

(b) A thorough examination of the assembled gear shall be made at least once in every year.

(c) An inspection to determine the condition and suitability of shipboard cargo gear will be made by a marine inspector at each inspection for certification. Inspections may be made at such other times as considered necessary by the Officer in Charge, Marine Inspection.

(d) For vessels fitted with cargo gear, an initial inspection of the assembled units under proof loads shall be conducted, followed by a complete dismantling or disassembling of such gear and a thorough examination of the parts to ascertain its condition. Subsequent tests of the assembled units under proof loads, followed by a dismantling or disassembling of such gear and a thorough examination shall be made once every 4 years, or oftener if necessary.

§ 31.37–3 Definitions of terms and words used in this subpart—TB/ALL.

(a) *Cargo gear.* The term "cargo gear" includes masts, stays, booms, winches, cranes, elevators, conveyors, standing and running gear forming that part of the shipboard cargo gear used in connection with the loading or unloading of dry cargo. This term does not include the gear used for handling cargo hoses or ship stores' only.

(b) *Dismantling or disassembling of gear.* The "dismantling" or "disassembling" of gear contemplated is the taking apart of units of gear to the extent necessary to determine the suitability of such gear for continued service and as may be specifically required to carry out the intent of a particular provision in this subpart. After proof load tests, the disassembling need not include the sheaves and pins of the blocks included in the test unless there appears to be evidence of deformation or failure.

(c) *Thorough examination.* The "thorough examination" contemplated is a visual examination, supplemented if necessary by other means such as by a hammer test or by a test with electronic or ultrasonic devices.

(d) *Ton.* The word "ton" means a ton of 2,240 pounds.

(e) *Safe working load.* The "safe working load" (SWL) contemplated is the load the gear is approved to lift, excluding the weight of the gear itself.

§ 31.37–5 Tests and examinations of shipboard cargo gear—TB/ALL.

(a) For vessels fitted with cargo gear and without valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, inspections shall be made by those competent persons described in § 31.10–16(c) (1) and (2), to determine the condition and suitability of the shipboard cargo gear. For the initial and subsequent quadrennial inspections, all the cranes, winches, hoists, derrick booms, derrick and mast bands, and all parts used in loading or unloading cargo shall be assembled in units and such assembled units shall then be tested under proof loads. The proof loads shall be handled for various types of units as required by specific regulations in this subpart. After the proof load tests of the assembled units of gear have been made, such gear shall be disassembled or dismantled so as to permit them to be thoroughly examined. The sheaves and pins of the blocks included in these proof load tests need not be removed unless there appears to be evidence of deformation or failure.

(b) For vessels fitted with cargo gear and holding valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, the marine inspectors may accept such certificates as prima facie evidence of compliance with the requirements in this subpart. If an Officer in Charge, Marine Inspection, is in doubt as to the condition and suitability of shipboard cargo gear for such a vessel, the tests and examinations, or such portions thereof as deemed necessary, provided for in this subpart will be required.

(c) If any part or portion of the gear fails or becomes defective during such tests, such defective equipment shall be satisfactorily repaired or replaced.

§ 31.37–15 Cargo gear plans required when plans are not approved by a classification society—TB/ALL.

(a) For a new vessel or a vessel applying for initial inspection, the following plans of cargo gear are required to be submitted in triplicate to the Officer in Charge, Marine Inspection, for approval:

(1) Plans showing a stress diagram with the principal details of the gear.

(2) Plans containing a diagram showing the arrangement of the assembled gear and indicating the safe working load for each component part.

(b) The safe working load on which the design of any component part of the cargo gear is to be based, shall be taken as the maximum resultant load upon the component part in the design conditions assumed. The safe working load of the assembly is the load the gear is approved to lift, excluding the weight of the gear itself.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 31.37–20 Cargo gear plans approved by a classification society—TB/ALL.

(a) The plans required by § 31.37–15 (a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by the American Bureau of Shipping or similar classification society recognized by the Commandant.

(b) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 31.37–25 Factors of safety—TB/ALL.

(a) In the design of the cargo gear, the safety factors in Table 31.37–25(a) taken in association with suitable design assumptions for actual loading conditions, shall be used and regarded as minima.

TABLE 31.37–25(a)

Safe working loads for component parts	Safety factors based on—		
	Ultimate strength	Yield point	Breaking test load
All metal structural parts, except steel booms:			
When the working load of the assembled gear is 10 tons or less	[1] 5		
When the working load of the assembled gear is 13 tons or over	[1] 4		
Steel booms:			
When the working load of the assembled gear is 10 tons or less		[1] 3	
When the working load of the assembled gear is 13 tons or over		[1] 2½	
Wooden structural parts	8		
Chains	4½		
Wire rope:			
For working loads 10 tons or under			5
For working loads over 10 tons			4
Fiber rope:			
When intended for running rigging	7		
When intended for fixed gear and vangs	5		

[1] For working loads between 10 and 13 tons, intermediate values of safety factors may be used.

(b) The Commandant will give consideration to the use of factors of safety differing from those given in Table 31.37–25(a) where special materials or cargo gear of special design are to be used.

§ 31.37–30 Loose gear certificates and tests—TB/ALL.

(a) (1) Evidence of compliance with the proof load test requirements in this section for all chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used as ship's cargo gear, shall be listed on an appropriate certificate.

(2) This evidence of test and the recording thereof is required only once with respect to each article of gear so long as each article is identified and the certificates required are available on the vessel.

(3) Proof loads applied to the articles of loose gear shall be as shown in Table 31.37–30(a) (3).

TABLE 31.37–30(a) (3)

Article of gear	*Proof load*
Chains, rings, hooks, links, shackles, swivels	Twice the safe working load.
Single sheave block	Four times the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.	Twice the safe working load.
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block over 40 tons	One and a half times the safe working load.
Chain fall blocks used with roller chains (pitched chains), and rings, hooks, shackles, or swivels permanently attached thereto.	Do.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin when lifting the safe working load attached to a rope which passes around the sheave of the block. The proof load is, therefore, equal to four times the safe working load or twice the safe working load when the load is attached directly to the block instead of a rope passing around the sheave.

(b) All chains, rings, hooks, links, shackles, swivels, blocks and any other loose gear, whether accessory to a machine or not, but which are used or intended for use as ship's cargo gear, shall bear a mark or number by which each piece can be identified when listed on a loose gear certificate. The safe working load "SWL" shall be marked on all blocks.

(c) The loose gear certificate shall show the distinguishing number or mark applied to the article of gear; a description of the article of gear; the date when the test proof load was applied; and the safe working load. The forms for loose gear certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(d) After being tested, all of the gear shall be examined to ascertain whether any part has been damaged, permanently deformed by the test, or has other visible defects. The pins and sheaves of all tested blocks shall be removed for this purpose. If damaged during these tests, such gear shall be satisfactorily repaired or replaced.

(e) The required examinations as set forth in paragraph (d) of this section may be accomplished by mechanical, electrical or other means provided the method employed is equal in efficiency to the visual examination of disassembled gear.

§ 31.37–35 Test and certification of wire rope—TB/ALL.

(a) All wire rope used as shipboard cargo gear shall be able to withstand a breaking test load of at least five times the safe working load. In the case of gear with a lifting capacity of over 10 tons, the breaking test load of wire rope shall be at least four times the safe working load. All wire rope shall be identified and described in a wire rope certificate. Such certificate shall be furnished and attested to by the manufacturer or a testing agency and shall certify:

(1) The breaking test load of a sample of the wire rope, which should be at least five times the safe working load or at least four times the safe working load if part of gear with a lifting capacity of over 10 tons;

(2) The name and address of the manufacturer;

(3) The diameter of the rope in inches and/or fractions thereof;

(4) The number of strands and the number of wires in each strand;

(5) The quality of the wire (e.g., improved plow steel);

(6) The date of the test; and,

(7) The load at which the sample broke.

(b) The forms for the wire rope certificate shall be prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(c) In addition to the manufacturers' or testing agencies' attestations, a sample of the wire rope may be tested to destruction if required by the marine inspector when a visual inspection indicates an apparent defective condition.

§ 31.37–40 Proof test of cargo gear as a unit—TB/ALL.

(a) Winches with their accessory gear, including the derricks and attachments, at least once in each four years, shall be tested as a unit with proof loads exceeding the safe working load as set forth in Table 31.37–40(a).

TABLE 31.37–40(a)

Safe working load of assembled gear	*Proof load*
Not exceeding 20 tons	25 percent in excess.
Over 20 tons but not exceeding 50 tons.	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load applied to winches and their gear shall be lifted with the ship's normal tackle, including the winches, and with the boom at an angle which should not be greater than 15 degrees to the horizontal or to the lowest angle approved in association with the design, or when these angles are impracticable, to the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(1) Where electrical winches are fitted with electromagnetic brakes, or where electrohydraulic winches are fitted with electromagnetic or hydraulic brakes at the winch, mechanical brakes for manual operation will not be required, but if so fitted shall be in satisfactory operating condition.

(2) Current for electric winch operation during the test shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

(c) Cranes and other hoisting machines with their accessory gear at least once in each four years, shall be tested, with a proof load which shall exceed the safe working load as set forth in Table 31.37–40(a).

(d) The proof load applied to cranes and hoists shall be lifted, topped, and swung (slewed) as far as possible in each direction. If the boom of the crane has a movable radius, it shall be tested with a proof load as set forth in this section at the maximum and minimum radii of the boom. In the case of hydraulic cranes whose capacity is limited by pressure, and with which it is not possible to lift a load 25 percent in excess of the safe working load, the greatest possible load in excess of the safe working load shall be used. These tests and the amounts of the loads shall be recorded.

(e) After satisfactory completion of the proof load testing of the cargo gear in accordance with paragraphs (a) through (d) of this section, the cargo gear and all component parts shall be given a thorough visual examination, supplemented as necessary by other means such as a hammer test or with electronic or ultrasonic devices, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use. If found defective, such gear shall be replaced.

(1) When the test is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there appears to be evidence of deformation or failure.

(2) For subsequent tests such parts of the machinery and gear shall be dismantled and/or disassembled after the test as necessary to determine its suitability for continued service.

(f) Appropriate means shall be provided to prevent the foot of the boom from being accidentally lifted from the socket during the test.

(g) Vessels whose cargo gear has been in use but are without the valid registers and certificates described in § 31.10–16 will be inspected for defective cargo gear. The gear shall then be tested and examined as prescribed in this section. If the movable weights for proof testing are not reasonably available, a spring or hydraulic scale certified for accuracy may be used. Whenever such scales are used, the proof load shall be applied with the boom swung out as far as possible in one direction and then in the other direction, and at such intermediate positions as may be indicated. At any position, the indicator of the scale must maintain a constant reading under the proof load for a period of five minutes.

(h) On all types of winches and cranes efficient means shall be provided to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated.

(i) Electric winches, electrohydraulic winches fitted with electromagnetic or hydraulic brakes at the winch, or cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator.

(2) Current for electric winches and cranes operation during the tests shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

§ 31.37–45 Marking of booms and cranes—TB/ALL.

(a) The safe working load (abbreviated "SWL") for the assembled gear shall be marked on the heel of each boom, with the minimum angle to the horizontal for which the gear is designed. These letters and figures shall be in contrasting colors to the background and at least one inch in height.

(b) Where booms are rated at varying capacities depending on the radii, tables indicating the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the operator when working the gear.

§ 31.37–50 Use of wire rope and chains—TB/ALL.

(a) An eye splice made in any wire rope used as cargo gear, with or without a thimble, shall have at least three tucks with whole strands and two tucks with one half of the wire cut from the tucking strand: *Provided*, That this requirement shall not preclude the use of any other form of splice or connection if it is as efficient as the splice specified.

(b) Single wire rope cargo falls, wire rope pendants, topping lifts and preventers shall consist of clear lengths without splices except at the working ends. Wire rope clips shall not be used to form eyes in the working ends of single wire rope cargo falls.

(c) Wire rope shall not be used for shipboard cargo gear if in any length of 8 diameters, the number of visible broken wires exceeds ten percent of the total number of wires in the rope, or if the rope shows other signs of excessive wear, corrosion, kinking, or defect.

(d) Hoisting or sling chains used for shipboard cargo gear shall not be used if a length of chain has been stretched more than five percent of the original length, or the chain has become unsafe through overloading or faulty heat treatment, or whenever other external defects are evident.

(e) Chains used for shipboard cargo gear shall not be shortened by knotting, bolting, or wiring the links. The use of chains having a knot or kink as shipboard cargo gear is prohibited.

§ 31.37–55 Annealing—TB/ALL.

(a) Chains, hooks, rings, links, shackles, and swivels of wrought iron used as cargo gear shall be annealed at the following intervals:

(1) Wrought iron chains and gear in general use and of one half inch or less, at least once in every six months.

(2) All other wrought iron chains and gear, including topping lift chains, in general use, at least once in every twelve months.

(b) The annealing shall be done in a suitable closed oven and not over an open fire. Wrought iron shall be annealed at a temperature of between 1100° and 1200° Fahrenheit for a period of between 30 and 60 minutes. After being annealed, the article shall be allowed to cool slowly and shall be then tested completely for defects.

(c) Heat treatment of the cargo gear shall be done only by reputable firms having suitable equipment and personnel trained for this purpose. A certificate attesting to the annealing shall be furnished for all gear so treated.

(d) The heat treatment of chains, hooks, rings, links, shackles, and swivels of materials other than wrought iron used as cargo gear, if required, shall be effected in accordance with the manufacturer's instructions.

§ 31.37–60 Additions to gear—TB/ALL.

(a) When articles of loose gear and/or wire rope conforming with the requirements in this subpart are added to installed gear, or used as replacements in such gear from time to time, a record shall be maintained on the vessel which shall identify each article and the certificate accompanying it.

§ 31.37–65 Alterations, renewals, or repairs of cargo gear—TB/ALL.

(a) Whenever important repairs, renewals, or alterations are indicated or intended for the masts, booms, and permanent fittings of the cargo gear, such repairs, renewals, or alterations shall be undertaken only after compliance with § 31.10–25.

(b) Tests and examinations of the repairs, renewals, or alterations will be in accordance with § 31.37–40.

(c) When welding is used to lengthen, alter, or repair chains, rings, hooks, links, shackles, or swivels, they shall be properly heat treated and shall, before being again put into use, be tested and examined in accordance with the provisions of § 31.37–30.

§ 31.37–70 Responsibility of ship's officer for inspection of cargo gear—TB/ALL.

(a) All wire rope, chains other than bridle chains attached to booms or masts, and all rings, hooks, links, shackles, swivels, and blocks used in loading or unloading shall be visually inspected by a ship's officer designated for that purpose by the master.

(b) These inspections by a ship's officer shall be made at frequent intervals, and in any event not less than once in each month.

(c) Immediately after such an inspection by a ship's officer notations of such an inspection shall be made in record form which shall be in or kept with the cargo gear register if carried. In addition, the same notations of inspections together with the dates shall be entered in the Official Logbook for those vessels required to carry this record, or such information shall be kept with the log records maintained on vessels not required to carry the Official Logbook. (See § 31.37–75 for entries required to be kept.)

§ 31.37–75 Records regarding cargo gear—TB/ALL.

(a) The cargo gear records described in this subpart shall be maintained on the vessel and shall be made available to Coast Guard officials upon request. These records shall be kept for the periods of time they are valid and, in addition, until the next Coast Guard inspection for certification of the vessel. The certificates of manufacturers and/or testing laboratories, companies, or organizations shall be maintained on the vessel so long as the gear described in such certificates is on board the vessel.

(b) The records of all the inspections of cargo gear made by the ship's officers in accordance with § 31.37–70 shall be maintained on the vessel for periods of time which agree with those periods as covered by the current Coast Guard certificate of inspection issued to the vessel. These records shall show the dates of inspections, identify articles inspected, the conditions observed, and the name of the officer performing the inspection.

(c) The records of all tests and examinations conducted by or under the supervision of surveyors of the organizations or associations approved by the Commandant shall be maintained on the vessel.

(d) The Coast Guard will not issue cargo gear certificates and/or registers. The Coast Guard's records of inspections, tests, and examinations of a particular vessel's cargo gear made by a marine inspector or conducted under the supervision of the Coast Guard will be maintained in the Office of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel at the time such work was performed. The original certificates or certified copies of certificates of manufacturers and/or testing laboratories, companies, or organizations for loose cargo gear, wire rope, or the annealing of gear shall be maintained on the vessel.

§ 31.37–80 Advance notice that cargo gear testing is desired—TB/ALL.

(a) The owner, agent, or master of a vessel shall give an advance notice when it is desired that the tests and examinations of cargo gear be made by or under the supervision of the marine inspectors. This advance notice shall be given to the Officer in Charge, Marine Inspection, in whose marine inspection zone the vessel is available for such inspection and examination.

(b) For the initial inspection and examination of cargo gear by the Coast Guard, the advance notice shall be to the cognizant Officer in Charge, Marine Inspection, as early as possible and shall include sketches and/or drawings showing each unit of cargo gear, the identification of component parts and the safe working loads. Copies of original certificates of manufacturers and/or testing laboratories, companies, or organizations maintained on the vessel may be accepted by the cognizant Officer in Charge, Marine Inspection, when satisfied such certificates properly describe the qualities of the component parts of the gear in question.

§ 31.37–85 Responsibility for conducting required tests and examinations—TB/ALL.

(a) The vessel's owners and/or operators shall furnish and pay the expenses required in conducting the tests and examinations prescribed by the regulations in this subpart, including the supplying of all instruments, other equipment, and personnel including personnel supervision for performance of all work required.

(b) The Coast Guard's participation in these required tests and examinations shall be confined to witnessing required tests and examinations with the view to determining whether or not the gear is satisfactory for the purpose intended. In the event it is determined that the gear is defective or unable to meet the standards set forth in this subpart, such gear, or portions thereof, shall be replaced to the satisfaction of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel.

PART 35—OPERATIONS

Subpart 35.30—General Safety Rules

1. Subpart 35.30 is amended by adding at the end thereof a new section reading as follows:

§ 35.30–40 Flammable liquid and gas fuels as ship's stores—TB/ALL.

(a) Flammable liquids and gases to be used as fuels for industrial trucks, lifeboats and other approved equipment shall be marked, labeled and stowed as follows:

(1) They shall be stowed in ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(2) Containers shall be marked with the name of contents and shall be labeled in accordance with ICC requirements as follows:

(i) Flammable liquids—"Red Label"; or,

(ii) Flammable gases—"Red Gas label".

(3) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing laboratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(b) Diesel fuel shall be stowed in locations designated by the master.

(R.S. 4405, as amended, 4417a, as amended, 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply sec. 3, 68 Stat. 675, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

Subpart 35.70—Power-Operated Industrial Trucks

2. Part 35 is amended by adding at the end thereof a new Subpart 35.70, entitled "Power-Operated Industrial Trucks," and consisting of §§ 35.70–1 to 35.70–35, reading as follows:

Sec.

35.70–1 Application—TB/ALL.
35.70–3 Alternates—TB/ALL.
35.70–5 Definitions of terms used in subpart—TB/ALL.
35.70–7 Approved power-operated industrial trucks—TB/ALL.
35.70–10 Permissible areas of use—TB/ALL.
35.70–15 Types of cargo permitted to be handled by trucks—TB/ALL.
35.70–20 Special operating conditions—TB/ALL.
35.70–25 Refueling—TB/ALL.
35.70–30 Charging or replacing batteries—TB/ALL.
35.70–35 Stowage of trucks aboard a vessel—TB/ALL.

AUTHORITY: §§ 35.70–1 to 35.70–35 issued under R.S. 4405, as amended, 4417a, as amended, and 4462, as amended; 46 U.S.C. 375, 391a, 416. Interpret or apply R.S. 4472, as amended, 4488, as amended, 4491, as amended, and sec. 3, 68 Stat. 675; 46 U.S.C. 170, 481, 489, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.

§ 35.70–1 Application—TB/ALL.

(a) *Power-operated industrial trucks.* (1) Power-operated industrial trucks when carried on board vessels as part of the vessel's equipment for handling materials of any kind shall be in compliance with the applicable provisions of this subpart.

(2) Power-operated industrial trucks placed on board vessels for handling materials of any kind shall be in compliance with the applicable provisions of this subpart when such vessels are within the navigable waters of the United States, its territories and possessions but not including the Panama Canal Zone.

(b) *Vessels.* (1) Vessels shall be in compliance with the applicable provisions of this Subpart during those periods of time when power-operated industrial trucks are on board as a part of the vessel's equipment or when such trucks are placed on board for handling materials of any kind.

NOTE: As set forth in § 30.01–5(e), the regulations in this subpart are also applicable to foreign flag tank vessels.

§ 35.70–3 Alternates—TB/ALL.

(a) In cases of undue hardship resulting from unavoidable delays in bringing existing power-operated industrial trucks into compliance with the applicable provisions of this subpart, the Commandant may permit the use of alternate equipment, apparatus, or arrangement for such period of time, and to such extent, and upon such conditions as will assure, to the Commandant's satisfaction, a degree of safety consistent with the minimum standards as set forth in this subpart.

(b) The methods and procedures adopted in connection with the modification of existing equipment to meet required laboratory designations will be taken into consideration in granting permission to use alternate arrangements for a limited period of time.

§ 35.70–5 Definitions of terms used in subpart—TB/ALL.

(a) Power-operated industrial trucks are considered to be tractors, lift trucks and other specialized industrial trucks used for material handling on board a vessel.

(b) For the purposes of the regulations in this subpart, the words "flammable" and "inflammable" are interchangeable or synonymous terms.

§ 35.70–7 Approved power-operated industrial trucks—TB/ALL.

(a) Where approved power-operated industrial trucks are required by the regulations in this subchapter, such approved trucks shall have a specific designation of a recognized testing laboratory except in case of trucks powered by compressed air. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' Laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Illinois) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D, and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood, Massachusetts for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D, and DS.

(b) Trucks powered by compressed air which is received through a flexible hose from a fixed source and having the air supply hose of the grounded type shall be considered of the approved type for purposes of this subpart.

(c) Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a "G" unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(d) In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable.

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the carriage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand; or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

§ 35.70–10 Permissible areas of use—TB/ALL.

(a) When the area on deck or in the hold in which power-operated industrial trucks are to be used has no bulk cargo vapors when tested but is an area in which such vapors could accumulate, these trucks may be used subject to the following conditions:

(1) Trucks used shall be suitable for type of cargo to be handled in accordance with § 35.70–15.

(2) Trucks used shall be suitable for areas in which vapors could accumulate in accordance with Table 35.70–10(a).

TABLE 35.70–10(a)

Type of truck	Grade of bulk cargo/vapors in vessel				
E					E
EE		B	C	D	E
EX	A	B	C	D	E
LP					E
LPS		B	C	D	E
G					E
GS		B	C	D	E
D					E
DS		B	C	D	E
Compressed air	A	B	C	D	E

(b) When a vessel is gas free, any approved truck can be used in any space except for restrictions as to types of cargo handled as specified in § 35.70–15.

§ 35.70–15 Types of cargo permitted to be handled by trucks—TB/ALL.

(a) Power-operated industrial trucks used for handling of packaged petroleum products shall be in accordance with Table 35.70–15(a).

TABLE 35.70–15(a)

Type of truck	Grade of packaged petroleum product				
E				D	E
EE		B	C	D	E
EX	A	B	C	D	E
LP				D	E
LPS		B	C	D	E
G				D	E
GS		B	C	D	E
D				D	E
DS		B	C	D	E
Compressed air	A	B	C	D	E

(b) Where dry cargo other than packaged petroleum products is to be handled by power-operated industrial trucks on board a tank vessel, types of trucks used shall be in accordance with § 97.70–10 of Subchapter I (Rules and Regulations for Cargo and Miscellaneous Vessels) of this Chapter, except that all trucks shall be approved.

(c) The use of power-operated industrial trucks may be further restricted due to bulk cargo and/or vapors as set forth in Table 35.70–10(a).

§ 35.70–20 Special operating conditions—TB/ALL.

(a) Permission shall be obtained from the senior deck officer on board before placing power-operated industrial trucks in operation on a tank vessel.

(b) The senior deck officer shall ascertain by portable carbon monoxide and explosive vapor meters, if necessary, that no hazardous gas concentrations exist before granting permission to operate power trucks.

(c) When power-operated industrial trucks are in use on board vessels subject to the regulations in this subchapter, they shall be in a safe operating condition.

(d) Spaces exposed to carbon monoxide or other hazardous vapors from the exhausts of power-operated industrial trucks shall have adequate ventilation. The concentration of carbon monoxide shall be kept below 100 parts per million in the holds and intermediate decks where persons are working. When necessary, portable blowers of adequate size and location shall be utilized.

(e) The parts and/or equipment of any power-operated industrial truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(f) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(g) When the temperature of any part of the truck is found to be in excess of a safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(h) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(i) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(j) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(k) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(l) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

§ 35.70–25 Refueling—TB/ALL.

(a) *When permitted.* Power-operated industrial trucks are not permitted to be refueled in the hold of a vessel or on the weather deck except under the following conditions:

(1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable non-spilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable non-spilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shut-off valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shut-off valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(b) *General requirements.* The following conditions must be met when refueling power-operated industrial trucks in the hold of a vessel or on the weather deck under the circumstances listed in paragraph (a) of this section:

(1) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(2) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(3) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area.

This is in addition to the portable extinguisher affixed to the truck in accordance with § 35.70–20(k).

(4) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area and smoking shall be prohibited.

(5) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of § 35.70–20 (d) when trucks are operating shall also apply when trucks are being refueled.

(6) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(7) All fuel handling devices and unmounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

§ 35.70–30 Charging or replacing batteries—TB/ALL.

(a) Battery charging or battery replacement on electric powered trucks shall not be accomplished on board the vessel in locations where vapors from Grades "A," "B," "C," or "D" cargo could accumulate.

(b) Locations on board vessel for battery charging or replacement shall be designated by the master of the vessel.

(c) Battery charging on board vessel shall be accomplished in accordance with the following provisions:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock shall be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(d) Suitable materials handling equipment shall be employed and adequate precautions taken to avoid damaging or short circuiting batteries and to avoid spillage of electrolyte.

(e) All unmounted batteries shall be removed from the hold where trucks will be operated before such operation commences.

§ 35.70–35 Stowage of trucks aboard a vessel—TB/ALL.

(a) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(1) Gasoline powered trucks shall have all the fuel expended from the system.

(2) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(b) Power-operated industrial trucks not meeting the conditions set forth in paragraph (a) of this section shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

SUBCHAPTER H—PASSENGER VESSELS

PART 71—INSPECTION AND CERTIFICATION

Subpart 71.25—Annual Inspection

1. Section 71.25–25 is amended by revising paragraph (a)(5) and by adding new paragraphs (b), (c), (d), and (e), reading as follows:

§ 71.25–25 Hull equipment.

(a) * * *

(5) An inspection of the cargo gear shall be required. The inspection may consist of tests and examinations to determine the condition and suitability of the cargo gear. Current valid certificates and registers of cargo gear issued by non-profit organizations or associations approved by the Commandant, may be accepted as prima facie evidence of the condition and suitability of the cargo gear. Cargo gear certificates and registers will not be issued by the Coast Guard.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conducted;

(2) Show the dates on which the tests and examinations were conducted; and,

(3) Indicate that the cargo gear therein described complies with standards equal to or exceeding those set forth in Subpart 71.47.

(c) Competent persons for the purposes of this section and Subpart 71.47 are:

(1) Coast Guard marine inspectors;

(2) Surveyors of the organizations or associations approved by the Commandant;

(3) Such other persons as are authorized by the regulations in Subpart 71.47 as may be required; and,

(4) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, hooks, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.

(e) It is the responsibility of the master to have a ship's officer inspect cargo gear when required by Subpart 71.47. For those inspected vessels which do not have valid cargo gear certificates and registers as provided by this section, such vessels will be required to have their shipboard cargo gear undergo tests and examinations in accordance with the provisions of Subpart 71.47.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4490, as amended, sec. 3, 24 Stat. 129, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152, sec. 3, 68 Stat. 675, as amended; 46 U.S.C. 391, 392, 404, 481, 482, 363, 369, 367, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

Subpart 71.47—Inspection of Cargo Gear

2. Part 71 is amended by inserting after Subpart 71.45 a new Subpart 71.47, entitled "Inspection of Cargo Gear," consisting of §§ 71.47–1 to 71.47–85, inclusive, which reads as follows:

Sec.

71.47–1 When made.
71.47–3 Definitions of terms and words used in this subpart.
71.47–5 Tests and examinations of shipboard cargo gear.
71.47–10 Cargo gear of special design and limited use.
71.47–15 Cargo gear plans required when plans are not approved by a classification society.
71.47–20 Cargo gear plans approved by a classification society.
71.47–25 Factors of safety.
71.47–30 Loose gear certificates and tests.
71.47–35 Test and certification of wire rope.
71.47–40 Proof test of cargo gear as a unit.
71.47–45 Marking of booms and cranes.
71.47–50 Use of wire rope and chains.
71.47–55 Annealing.
71.47–60 Additions to gear.
71.47–65 Alterations, renewals, or repairs of cargo gear.
71.47–70 Responsibility of ship's officer for inspection of cargo gear.
71.47–75 Records regarding cargo gear.
71.47–80 Advance notice that cargo gear testing is desired.
71.47–85 Responsibility for conducting required tests and examinations.

AUTHORITY: §§ 71.47–1 to 71.47–85 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4490, as amended, sec. 3, 24 Stat. 129, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 482, 363, 369, 367, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.

§ 71.47–1 When made.

(a) The specific tests and examinations shall be made at the intervals stated in the regulations in this subpart.

(b) A thorough examination of the assembled gear shall be made at least once in every year.

(c) An inspection to determine the condition and suitability of shipboard cargo gear will be made by a marine inspector at each inspection for certification. Inspections may be made at such other times as considered necessary by the Officer in Charge, Marine Inspection.

(d) For vessels fitted with cargo gear, an initial test of the assembled units under proof loads shall be conducted, followed by a complete dismantling or disassembling of such gear and a thorough examination of the parts to ascertain its condition. Subsequent tests of the assembled units under proof loads, followed by a dismantling or disassembling of such gear and a thorough examination shall be made once every 4 years, or oftener if necessary.

§ 71.47–3 Definitions of terms and words used in this subpart.

(a) *Cargo gear.* The term "cargo gear" includes masts, stays, booms, winches, cranes, elevators, conveyors, standing and running gear forming that part of the shipboard cargo gear used in connection with the loading or unloading of a vessel. This term does not include material handling gear and rigging of special design vessels used solely in dredging, pile driving, drilling for mineral deposits, and construction work.

(b) *Dismantling or disassembling of gear.* The "dismantling" or "disassembling" of gear contemplated is the taking apart of units of gear to the extent necessary to determine the suitability of such gear for continued service and as may be specifically required to carry out the intent of a particular regulation in this subpart. After proof load tests the disassembling need not include the sheaves and pins of the blocks included in the test unless there appears to be evidence of deformation or failure.

(c) *Thorough examination.* The "thorough examination" contemplated is a visual examination, supplemented if necessary by other means such as by a hammer test or by a test with electronic or ultrasonic devices.

(d) *Ton.* The word "ton" means a ton of 2,240 pounds.

(e) *Safe working load.* The "safe working load" (SWL) contemplated is the load the gear is approved to lift, excluding the weight of the gear itself.

§ 71.47–5 Tests and examinations of shipboard cargo gear.

(a) For vessels fitted with cargo gear and without valid cargo gear certificates and registers issued by organizations or associations, recognized by the Coast Guard, inspections shall be made by those competent persons described in § 71.25–25(c) (1) and (2), to determine the condition and suitability of the shipboard cargo gear. For the initial and subsequent quadrennial inspections, all the cranes, winches, hoists, derrick booms, derrick and mast bands, and all parts used in loading or unloading cargo shall be assembled in units and such assembled units shall then be tested under proof loads. The proof loads shall be handled for various types of units as required by specific regulations in this subpart. After the proof load tests of the assembled units of gear have been made, such gear shall be disassembled or dismantled so as to permit them to be thoroughly examined. The sheaves and pins of the blocks included in these proof load tests need not be removed unless there appears to be evidence of deformation or failure.

(b) For vessels fitted with cargo gear and holding valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, the marine inspectors may accept such certificates as prima facie evidence of compliance with the requirements in this subpart. If an Officer in Charge, Marine Inspection, is in doubt as to the condition and suitability of shipboard cargo gear for such a vessel, the tests and examinations, or such portions thereof as deemed necessary, provided for in this subpart will be required.

(c) If any part or portion of the gear fails or becomes defective during such tests, such defective equipment shall be satisfactorily repaired or replaced.

§ 71.47–10 Cargo gear of special design and limited use.

(a) The regulations in this subpart shall apply to cargo gear of special design and limited use (derrick barges rigged for heavy lifts, cargo booms on self unloaders, etc.) only to the extent that it is practicable to do so. These requirements may be modified by the Officer in Charge, Marine Inspection, where the inspection is performed, according to the design characteristics of such cargo gear.

(b) Nondestructive tests, such as radiography, ultrasonic, electronic or other methods, may be utilized to determine the condition of heavy lift gear after it has been unit tested, provided such methods are acceptable to the Officer in Charge, Marine Inspection, having cognizance of the tests. However, no deviations or modifications shall be permitted to lessen the requirements for cargo gear inspection as set forth in § 71.47–70 and the maintenance of the applicable cargo gear records as set forth in § 71.47–75.

§ 71.47–15 Cargo gear plans required when plans are not approved by a classification society.

(a) For a new vessel or a vessel applying for initial inspection, the following plans of cargo gear shall be submitted in triplicate to the Officer in Charge, Marine Inspection, having jurisdiction for approval:

(1) Plans showing a stress diagram with the principal details of the gear.

(2) Plans containing a diagram showing the arrangement of the assembled gear and indicating the safe working load for each component part.

(b) The safe working load on which the design of any component part of the cargo gear is to be based, shall be taken as the maximum resultant load upon the component part in the design conditions assumed. The safe working load of the assembly is the load the gear is approved to lift, excluding the weight of the gear itself.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 71.47–20 Cargo gear plans approved by a classification society.

(a) The plans required by § 71.45–15 (a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by the American Bureau of Shipping or similar classification society recognized by the Commandant.

(b) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 71.47–25 Factors of safety.

(a) In the design of the cargo gear, the safety factors in Table 71.47–25(a), taken in association with suitable design assumptions for actual loading conditions, shall be used and regarded as minima.

TABLE 91.47-25(a)

Safe working loads for component parts	Safety factors based on—		
	Ultimate strength	Yield point	Breaking test load
All metal structural parts, except steel booms: When the working load of the assembled gear is 10 tons or less	[1] 5		
When the working load of the assembled gear is 13 tons or over	[1] 4		
Steel booms: When the working load of the assembled gear is 10 tons or less		[1] 3	
When the working load of the assembled gear is 13 tons or over		[1] 2½	
Wooden structural parts	8		
Chains	4½		
Wire rope: For working loads 10 tons [1] or under			5
For working loads over 10 tons [1]			4
Fiber rope: When intended for running rigging	7		
When intended for fixed gears and vangs	5		

[1] For working loads between 10 and 13 tons, intermediate values of safety factors may be used.

(b) The Commandant will give consideration to the use of factors of safety differing from those given in Table 71.47-25(a) where special materials or cargo gear of special design are to be used.

§ 71.47-30 Loose gear certificates and tests.

(a) (1) Evidence of compliance with the proof load test requirements in this section for all chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used as ship's cargo gear, shall be listed on an appropriate certificate.

(2) This evidence of test and the recording thereof is required only once with respect to each article of gear so long as each article is identified and the certificates required are available on the vessel.

(3) Proof loads applied to the articles of loose gear shall be as shown in Table 71.47-30(a)(3).

TABLE 71.47-30(a)(3)

Article of gear	*Proof load*
Chains, rings, hooks, links, shackles, swivels	Twice the safe working load.
Single sheave block	Four times the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.[1]	Twice the safe working load.
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block over 40 tons	One and a half times the safe working load.
Roller chains (pitched chains) used with hand operated chain falls, and rings, hooks, shackles, or swivels permanently attached thereto.	Do.
Chain fall blocks used with roller chains (pitched chains), and rings, hooks, shackles, or swivels permanently attached thereto.	Do.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin when lifting the safe working load attached to a rope which passes around the sheave of the block. The proof load is, therefore, equal to four times the safe working load or twice the safe working load when the load is attached directly to the block instead of a rope passing around the sheave.

(b) All chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used or intended for use as ship's cargo gear, shall bear a mark or number by which each piece can be identified and shall be listed on a loose gear certificate. The safe working load "SWL" shall be marked on all blocks.

(c) The loose gear certificate shall show the distinguishing number or mark applied to the article of gear; a description of the article of gear; the date when the test proof load was applied; and the safe working load. The forms for loose gear certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes of this section.

(d) After being tested all of the gear shall be examined to ascertain whether any part has been damaged, permanently deformed by the test or has other visible defects. The pins and sheaves of all tested blocks shall be removed for this purpose. If damaged during these tests, such gear shall be satisfactorily repaired or replaced.

(e) The required examinations as set forth in paragraph (d) of this section may be accomplished by mechanical, electrical, or other means provided the method employed is equal in efficiency to the visual examination of disassembled gear.

§ 71.47-35 Test and certification of wire rope.

(a) All wire rope used as shipboard cargo gear shall be able to withstand a breaking test load of at least five times the safe working load. In the case of gear with a lifting capacity of over 10 tons, the breaking test load of wire rope shall be at least four times the safe working load. All wire rope shall be identified and described in a wire rope certificate. Such certificate shall be furnished and attested to by the manufacturer or a testing agency and shall certify:

(1) The breaking test load of a sample of the wire rope, which should be at least five times the safe working load or at least four times the safe working load if part of gear with a lifting capacity of over 10 tons;

(2) The name and address of the manufacturer;

(3) The diameter of the rope in inches and/or fractions thereof;

(4) The number of strands and the number of wires in each strand;

(5) The quality of the wire (e.g. improved plow steel);

(6) The date of the test; and,

(7) The load at which the sample broke.

(b) The forms for the wire rope certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(c) In addition to the manufacturers' or testing agencies' attestations, a sample of the wire rope may be tested to destruction if required by the marine inspector when a visual inspection indicates an apparent defective condition.

§ 71.47-40 Proof test of cargo gear as a unit.

(a) Winches with their accessory gear, including the derricks and attachments, at least once in each four years, shall be tested as a unit with proof loads exceeding the safe working load as set forth in Table 71.47-40(a).

TABLE 71.47-40(a)

Safe working load of assembled gear	*Proof load*
Not exceeding 20 tons	25 percent in excess.
Over 20 tons but not exceeding 50 tons.	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load applied to winches and their gear shall be lifted with the ship's normal tackle, including the winches, and with the boom at an angle which should not be greater than 15 degrees to the horizontal or to the lowest angle approved in association with the design, or when these angles are impracticable to the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(1) Where electrical winches are fitted with electromagnetic brakes, or where electrohydraulic winches are fitted with electromagnetic or hydraulic brakes at the winch, mechanical brakes for manual operations will not be required, but if so fitted shall be in satisfactory operating condition.

(2) Current for electric winch operation during the test shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

(c) Cranes and other hoisting machines with their accessory gear, at least once in each four years, shall be tested with a proof load which shall exceed the safe working load as set forth in Table 71.47-40(a).

(d) The proof load applied to cranes and hoists shall be lifted, topped and swung (slewed) as far as possible in each direction. If the boom of the crane has a movable radius, it shall be tested with a proof load as set forth in this section

at the maximum and minimum radii of the boom. In the case of hydraulic cranes whose capacity is limited by pressure, and with which it is not possible to lift a load 25 percent in excess of the safe working load, the greatest possible load in excess of the safe working load, shall be used. These tests and the amounts of the loads shall be recorded.

(e) After satisfactory completion of the proof load testing of the cargo gear in accordance with paragraphs (a), (b), (c), and (d) of this section, the cargo gear and all component parts shall be given a thorough visual examination, supplemented as necessary by other means such as a hammer test or with electronic or ultrasonic devices, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use. If found defective, such gear shall be replaced.

(1) When the test is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there appears to be evidence of deformation or failure.

(2) For subsequent tests such parts of the machinery and gear shall be dismantled and/or disassembled after the test as necessary to determine its suitability for continued service.

(f) Appropriate means shall be provided to prevent the foot of the boom from being accidentally lifted from the socket during the test.

(g) Vessels whose cargo gear has been in use but are without the valid registers and certificates described in § 71.25–25 will be inspected for defective cargo gear. The gear shall then be tested and examined as prescribed in this section. If the movable weights for proof testing are not reasonably available, a spring or hydraulic scale certified for accuracy may be used. Whenever such scales are used, the proof load shall be applied with the boom swung out as far as possible in one direction and then in the other direction, and at such intermediate positions as may be indicated. At any position, the indicator of the scale must maintain a constant reading under the proof load for a period of five minutes.

(h) On all types of winches and cranes efficient means shall be provided to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated.

(1) Electric winches, electrohydraulic winches fitted with electromagnetic or hydraulic brakes at the winch, or cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator.

(2) Current for electric winch and crane operations during the tests shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

§ 71.47–45 Marking of booms and cranes.

(a) The safe working load (abbreviated "SWL") for the assembled gear shall be marked on the heel of each boom with the minimum angle to the horizontal for which the gear is designed. These letters and figures shall be in contrasting colors to the background and at least one inch in height.

(b) Where booms are rated at varying capacities depending on the radii, tables indicating the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the operator when working the gear.

§ 71.47–50 Use of wire rope and chains.

(a) An eye splice made in any wire rope used as cargo gear, with or without a thimble, shall have at least three tucks with whole strands and two tucks with one half of the wire cut from the tucking strand: *Provided,* That this requirement shall not preclude the use of any other form of splice or connection if it is as efficient as the splice specified.

(b) Single wire rope cargo falls, wire rope pendants, topping lifts and preventers shall consist of clear lengths without splices except at the working ends. Wire rope clips shall not be used to form eyes in the working ends of single wire rope cargo falls.

(c) Wire rope shall not be used for shipboard cargo gear if in any length of 8 diameters, the number of broken wires exceeds ten percent of the total number of wires in the rope, or if the rope shows other signs of excessive wear, corrosion, kinking or defect.

(d) Hoisting or sling chains used for shipboard cargo gear shall not be used if a length of chain has been stretched more than five percent of the original length, or the chain has become unsafe through overloading or faulty heat treatment, or whenever other external defects are evident.

(e) Chains used for shipboard cargo gear shall not be shortened by knotting, bolting, or wiring the links. The use of chains having a knot or kink as shipboard cargo gear is prohibited.

§ 71.47–55 Annealing.

(a) Chains, hooks, rings, links, shackles, and swivels of wrought iron used as cargo gear shall be annealed at the following intervals:

(1) Wrought iron chains and gear in general use and of one half inch or less, once at least in every six months.

(2) All other wrought iron chains and gear, including topping lift chains, in general use, at least once in every twelve months.

(b) The annealing shall be done in a suitable closed oven and not over an open fire. Wrought iron shall be annealed at a temperature of between 1100° and 1200° Fahrenheit for a period of between 30 and 60 minutes. After being annealed, the article shall be allowed to cool slowly and shall be then tested completely for defects.

(c) Heat treatment of the cargo gear shall be done only by reputable firms having suitable equipment and personnel trained for this purpose. A certificate attesting to the annealing of all gear heat treated shall be furnished to the vessel.

(d) The heat treatment of chains, hooks, rings, links, shackles, and swivels of materials other than wrought iron used as cargo gear, if required, shall be effected in accordance with the manufacturer's instructions.

§ 71.47–60 Additions to gear.

(a) When articles of loose gear and/or wire rope conforming with the requirements in this subpart are added to installed gear, or used as replacements in such gear from time to time, a record shall be maintained on the vessel which shall identify each article and the certificate accompanying it.

§ 71.47–65 Alterations, renewals, or repairs of cargo gear.

(a) Whenever important repairs, renewals, or alterations are indicated or intended for the masts, booms, and permanent fittings of the cargo gear, such repairs, renewals, or alterations shall be undertaken only after compliance with the applicable provisions of § 71.55–1.

(b) Tests and examinations of the repairs, renewals, or alterations will be in accordance with the provisions of § 71.47–40.

(c) When welding is used to lengthen, alter, or repair chains, rings, hooks, links, shackles, or swivels, they shall be properly heat treated and shall before being again put into use, be tested and examined in accordance with the provisions of § 71.47–30.

§ 71.47–70 Responsibility of ship's officer for inspection of cargo gear.

(a) All wire rope, chains other than bridle chains attached to booms or masts, and all rings, hooks, links, shackles, swivels and blocks used in loading or unloading shall be visually inspected by a ship's officer designated for that purpose by the master.

(b) These inspections by a ship's officer shall be made at frequent intervals, and in any event not less than once in each month.

(c) Immediately after such an inspection by a ship's officer notations of such an inspection shall be made in record form which shall be in or kept with the cargo gear register if carried. In addition, the same notations of inspections together with the dates shall be entered in the Official Logbook for those vessels required to carry this record, or such information shall be kept with the log records maintained on vessels not required to carry the Official Logbook. (See § 71.47–75 for entries required to be kept.)

§ 71.47–75 Records regarding cargo gear.

(a) The cargo gear records described in this subpart shall be maintained on the vessel and shall be made available to Coast Guard officials upon request. These records shall be kept for the periods of time they are valid and, in addition, until the next Coast Guard inspection for certification of the vessel. The certificates of manufacturers and/or testing laboratories, companies, or organizations shall be maintained on the vessel so long as the gear described in such certificates is on board the vessel.

(b) The records of all the inspections of cargo gear made by the ship's officers in accordance with § 71.47–70 shall be maintained on the vessel for periods of time which agree with those periods as covered by the current Coast Guard certificate of inspection issued to the vessel. These records shall show the dates of inspections, identify articles inspected, the conditions observed, and the name of the officer performing the inspection.

(c) The records of all tests and examinations conducted by or under the supervision of surveyors of the organizations or associations approved by the Commandant shall be maintained on the vessel.

(d) The Coast Guard will not issue cargo gear certificates and/or registers. The Coast Guard's records of inspections, tests, and examinations of a particular vessel's cargo gear made by a marine inspector or conducted under the supervision of the Coast Guard will be maintained in the office of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel at the time such work was performed. The original certificates or certified copies of certificates of manufacturers and/or testing laboratories, companies, or organizations for loose cargo gear, wire rope, or the annealing of gear shall be maintained on the vessel.

§ 71.47–80 Advance notice that cargo gear testing is desired.

(a) The owner, agent, or master of a vessel shall give an advance notice when it is desired that the tests and examinations of cargo gear be made by or under the supervision of the marine inspector. This advance notice shall be given to the Officer in Charge, Marine Inspection, in whose marine inspection zone the vessel is available for such inspection and examination.

(b) For the initial inspection and examination of cargo gear by the Coast Guard, the advance notice shall be to the cognizant Officer in Charge, Marine Inspection, as early as possible and shall include sketches and/or drawings showing each unit of cargo gear, the identification of component parts and the safe working loads. Copies of original certificates of manufacturers and/or testing laboratories, companies, or organizations maintained on the vessel may be accepted by the cognizant Officer in Charge, Marine Inspection, when satisfied such certificates properly describe the qualities of the component parts of the gear in question.

§ 71.47–85 Responsibility for conducting required tests and examinations.

(a) The vessel's owners and/or operators shall furnish and pay the expenses required in conducting the tests and examinations prescribed by the regulations in this subpart, including the supplying of all instruments, other equipment, and personnel including personnel supervision for performance of all work required.

(b) The Coast Guard's participation in these required tests and examinations shall be confined to witnessing required tests and examinations with the view to determining whether or not the gear is satisfactory for the purpose intended. In the event it is determined that the gear is defective or unable to meet the standards set forth in this subpart, such gear, or portions thereof, shall be replaced to the satisfaction of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel.

Subpart 71.65—Plan Approval

3. Section 71.65–5(b) is amended by adding a new subparagraph (13) reading as follows:

§ 71.65–5 Plans and specifications required for new construction.

* * * * *

(b) * * *

(13) *Arrangement of the cargo gear including a stress diagram. The principal details of the gear and the safe working load for each component part shall be shown.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4418, as amended, 4421, as amended, 4423, as amended, 4426–4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4490, as amended, sec. 3, 24 Stat. 129, as amended, sec. 14, 24 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, sec. 5, 49 Stat. 1384, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152, sec. 3, 68 Stat. 675, as amended; 46 U.S.C. 361, 362, 391, 392, 399, 400, 404–409, 411, 412, 435, 481, 482, 483, 366, 395, 363, 369, 367, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

PART 78—OPERATIONS

Subpart 78.80—Power-Operated Industrial Trucks

1. Part 78 is amended by adding at the end thereof a new Subpart 78.80, entitled "Power-Operated Industrial Trucks," consisting of §§ 78.80–1 to 78.80–35, inclusive, reading as follows:

Sec.

78.80–1 Application.
78.80–3 Alternates.
78.80–5 Definitions of terms used in subpart.
78.80–7 Approved power-operated industrial trucks.
78.80–10 Use of power-operated industrial trucks in various locations.
78.80–15 Special operating conditions.
78.80–20 Refueling.
78.80–25 Charging or replacing batteries.
78.80–30 Stowage of power-operated industrial trucks aboard a vessel.
78.80–35 Stowage of fuel handling devices aboard a vessel.

AUTHORITY: §§ 78.80–1 to 78.80–35 issued under R.S. 4405, as amended, and 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417a, as amended, 4426, as amended, 4472, as amended, 4488, as amended, 4491, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152 and sec. 3, 68 Stat. 675; 46 U.S.C. 391a, 404, 170, 481, 489, 367, 1333, 390b, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.

§ 78.80–1 Application.

(a) *Power-operated industrial trucks.* (1) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks carried on board vessel as part of the vessel's equipment for handling materials of any kind shall be in compliance with the applicable provisions of this subpart.

(2) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks placed on board vessels for handling materials of any kind shall be in compliance with the applicable provisions of this subpart when such vessels are within the navigable waters of the United States, its territories and possessions but not including the Panama Canal Zone.

(3) When power-operated industrial trucks are used in spaces not containing dangerous or hazardous articles, as set forth in § 78.80–10(f) of this subpart, the installation of the minimum safety features of § 78.80–7(c) shall be carried out at the earliest opportunity but in any case not later than July 1, 1963.

(b) *Vessels.* (1) Vessels shall be in compliance with the applicable provisions of this subpart during those periods of time when power-operated industrial trucks are on board as part of the vessel's equipment or when such trucks are placed on board for handling materials of any kind.

NOTE: The regulations affecting the use of power-operated industrial trucks on foreign vessels are in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels), or in the case of foreign tank vessels in Subpart 35.70 of Subchapter D (Tank Vessels) of this chapter.

§ 78.80–3 Alternates.

(a) In cases of undue hardship resulting from unavoidable delays in bringing existing power-operated industrial trucks into compliance with the applicable provisions of this subpart, the Commandant may permit the use of alternate equipment, apparatus, or arrangement for such period of time, and to such extent, and upon such conditions as will assure, to the Commandant's satisfaction, a degree of safety consistent with the minimum standards as set forth in this subpart.

(b) The methods and procedures adopted in connection with the modification of existing equipment to meet required laboratory designations will be taken into consideration in granting permission to use alternate arrangements for a limited period of time.

§ 78.80–5 Definitions of terms used in subpart.

(a) Power-operated industrial trucks are considered to be tractors, lift trucks, and other specialized industrial trucks used for material handling on board a vessel.

(b) For the purpose of the regulations in this subpart, the words "flammable" and "inflammable" are interchangeable or synonymous terms.

§ 78.80–7 Approved power-operated industrial trucks.

(a) Where approved power-operated industrial trucks are required by the regulations in this subchapter such approved trucks shall have a specific designation of a recognized testing labora-

tory. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' Laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Illinois) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood, Massachusetts for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(b) Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a G unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(c) In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable:

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the carriage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand, or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

§ 78.80–10 Use of power-operated industrial trucks in various locations.

(a) *Spaces containing explosives.* (1) Except as otherwise provided in this paragraph, power-operated industrial trucks shall not be used in a space in which Class A, Class B, or Class C explosives are stowed.

NOTE: Class A, Class B and Class C explosives are defined in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(2) The Commandant may grant authority for the use of approved power-operated industrial trucks with a recognized testing laboratory designation of EX in spaces in which Class A, Class B or Class C explosives are stowed when it can be shown that such trucks can be used with safety.

(3) In a space in which packaged small arms ammunition without explosive bullets is stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, LPS, GS and DS may be used for handling cargo including the handling of such packaged small arms ammunition.

(b) *Spaces containing flammable liquids.* (1) In a space in which packaged flammable liquids are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable liquids.

(c) *Spaces containing flammable solids or oxidizing materials.* (1) In a space in which packaged flammable solids or oxidizing materials are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable solids or oxidizing materials.

(2) When flammable solids or oxidizing materials are contained in closed cargo vans or closed containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 78.80–7(c) may be used in the spaces.

(3) When oxidizing materials in bulk are stowed in the holds or compartment, any approved commercial type power-operated industrial truck may be used in the spaces.

(d) *Spaces containing hazardous articles of a fibrous nature.* (1) In a space in which packaged hazardous articles of a fibrous nature are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS and DS may be used for handling cargo including the handling of such packaged hazardous articles of a fibrous nature.

(2) When hazardous articles of a fibrous nature are contained in closed cargo vans or closed portable containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 78.80–7(c) may be used in the spaces.

(e) *Spaces containing other dangerous cargoes and hazardous articles.* (1) In a space in which dangerous cargoes or hazardous articles subject to the regulations in Part 146 of this chapter, except those provided for in paragraphs (a), (b), (c) and (d) of this section, any approved power-operated industrial truck may be used to handle cargo including the handling of such dangerous cargoes or hazardous articles.

(f) *Other spaces.* (1) Any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 78.80–7(c) may be used in spaces and for handling cargo in spaces

not otherwise restricted by regulation in this subpart.

§ 78.80–15 Special operating conditions.

(a) Notification shall be given to the master or senior deck officer on board before placing power-operated industrial trucks in use aboard the vessel.

(b) When power-operated industrial trucks are in use on board vessels subject to the regulations in this subchapter, they shall be in a safe operating condition.

(c) Spaces exposed to carbon monoxide or other hazardous vapors from the exhausts of power-operated industrial trucks shall have adequate ventilation. The concentration of carbon monoxide shall be kept below 100 parts per million in the holds and intermediate decks where persons are working. When necessary, portable blowers of adequate size and location shall be utilized.

(d) The parts and/or equipment of any power-operated industrial truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(e) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(f) When the temperature of any part of the truck is found to be in excess of a safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(g) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(h) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(i) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(j) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(k) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

§ 78.80–20 Refueling.

(a) *When permitted.* Power-operated industrial trucks are not permitted to be refueled in the hold of a vessel or on the weather deck except under the following conditions:

(1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable non-spilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable non-spilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shut-off valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shut-off valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(b) *General requirements.* The following conditions must be met when refueling power-operated industrial trucks in the hold of a vessel or on the weather deck under the circumstances listed in paragraph (a) of this section:

(1) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(2) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(3) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area. This is in addition to portable extinguisher affixed to the truck in accordance with § 78.80–15(j).

(4) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area and smoking shall be prohibited.

(5) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of § 78.80–15(c) when trucks are operating shall also apply when trucks are being refueled.

(6) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(7) All fuel handling devices and unmounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

§ 78.80–25 Charging or replacing batteries.

(a) Batteries for electrically-powered industrial trucks and for the ignition systems of internal combustion engine-powered industrial trucks may be changed in the hold of a vessel provided the following conditions are met:

(1) Suitable handling equipment shall be employed.

(2) Adequate precautions shall be taken to avoid damage to the battery, short circuiting of the battery and spillage of the electrolyte.

(b) Batteries of electrically-powered industrial trucks may be recharged in a hold of a vessel provided the following conditions are met:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock shall be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The hold shall not contain any cargo coming under the regulations in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(4) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(c) All unmounted batteries shall be suitably protected or removed from an area in the hold of the vessel before trucks are operated in that area.

§ 78.80–30 Stowage of power-operated industrial trucks aboard a vessel.

(a) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(1) Gasoline powered trucks shall have all the fuel expended from the system.

(2) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(b) Power-operated industrial trucks not meeting the conditions set forth in

paragraph (a) of this section shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

§ 78.80–35 Stowage of fuel handling devices aboard a vessel.

(a) Flammable liquids and gases to be used as fuels for power-operated industrial trucks shall be marked, labeled and stowed as follows:

(1) They shall be stowed in ICC specification containers, A.S.M.E. containers or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(2) Containers shall be marked with the name of the contents and shall be labeled in accordance with ICC requirements as follows:

(i) Flammable liquids—"Red Label"; or,

(ii) Flammable gases—"Red Gas Label".

(3) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing laboratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(b) Diesel fuel shall be stowed in locations designated by the master.

SUBCHAPTER I—CARGO AND MISCELLANEOUS VESSELS

PART 91—INSPECTION AND CERTIFICATION

Subpart 91.25—Inspection for Certification

1. Section 91.25–25 is amended by revising paragraph (a)(3) and by adding new paragraphs (b), (c), (d) and (e), reading as follows:

§ 91.25–25 Hull equipment.

(a) * * *

(3) An inspection of the cargo gear shall be required. The inspection may consist of tests and examinations to determine the condition and suitability of the cargo gear. Current valid certificates and registers of cargo gear, issued by recognized non-profit organizations or associations approved by the Commandant, may be accepted as prima facie evidence of the condition and suitability of the cargo gear. Cargo gear certificates and registers will not be issued by the Coast Guard.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conducted;

(2) Show the dates on which the tests and examinations were conducted; and

(3) Indicate that the cargo gear therein described complies with standards equal to or exceeding those set forth in Subpart 91.37.

(c) Competent persons for the purposes of this section and Subpart 91.37 are:

(1) Coast Guard marine inspectors;

(2) Surveyors of the organizations or associations approved by the Commandant;

(3) Such other persons as are authorized by the regulations in Subpart 91.37 as may be required; and,

(4) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, hooks, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.

(e) It is the responsibility of the master to have a ship's officer inspect cargo gear when required by Subpart 91.37. For those inspected vessels which do not have valid cargo gear certificates and registers as provided by this section, such vessels will be required to have their shipboard cargo gear undergo tests and examinations in accordance with the provisions of Subpart 91.37.

(R.S. 4405, as amended, 4462, as amended, 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4418, as amended, 4421, as amended, 4423, as amended, 4426–4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 4, 49 Stat. 1935, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 392, 399, 400, 404–409, 411, 412, 435, 481, 366, 395, 363, 367, 660a, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

Subpart 91.37—Inspection of Cargo Gear

2. Part 91 is amended by inserting after Subpart 91.35 a new Subpart 91.37, entitled "Inspection of Cargo Gear," consisting of §§ 91.37–1 to 91.37–85, inclusive, which reads as follows:

Sec.

91.37–1 When made.
91.37–3 Definitions of terms and words used in this subpart.
91.37–5 Tests and examinations of shipboard cargo gear.
91.37–10 Cargo gear of special design and limited use.
91.37–15 Cargo gear plans required when plans are not approved by a classification society.
91.37–20 Cargo gear plans approved by a classification society.
91.37–25 Factors of safety.
91.37–30 Loose gear certificates and tests.
91.37–35 Test and certification of wire rope.
91.37–40 Proof test of cargo gear as a unit.
91.37–45 Marking of booms and cranes.
91.37–50 Use of wire rope and chains.
91.37–55 Annealing.
91.37–60 Additions to gear.
91.37–65 Alterations, renewals, or repairs of cargo gear.
91.37–70 Responsibility of ship's officer for inspection of cargo gear.
91.37–75 Records regarding cargo gear.
91.37–80 Advance notice that cargo gear testing is desired.
91.37–85 Responsibility for conducting required tests and examinations.

AUTHORITY: §§ 91.37–1 to 91.37–85 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4490, as amended, sec. 3, 24 Stat. 129, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 482, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.

§ 91.37–1 When made.

(a) The specific tests and examinations shall be made at the intervals stated in the regulations in this subpart.

(b) A thorough examination of the assembled gear shall be made at least once in every year.

(c) An inspection to determine the condition and suitability of shipboard cargo gear will be made by a marine inspector at each inspection for certification. Inspections may be made at such other times as considered necessary by the Officer in Charge, Marine Inspection.

(d) For vessels fitted with cargo gear, an initial test of the assembled units under proof loads shall be conducted, followed by a complete dismantling or disassembling of such gear and a thorough examination of the parts to ascertain its condition. Subsequent tests of the assembled units under proof loads, followed by a dismantling or disassembling of such gear and a thorough examination shall be made once every 4 years, or oftener if necessary.

§ 91.37–3 Definitions of terms and words used in this subpart.

(a) *Cargo gear.* The term "cargo gear" includes masts, stays, booms, winches, cranes, elevators, conveyors, standing and running gear forming that part of the shipboard cargo gear used in connection with the loading or unloading of a vessel. This term does not include material handling gear and rigging of special design vessels used solely in dredging, pile driving, drilling for mineral deposits, and construction work.

(b) *Dismantling or disassembling of gear.* The "dismantling" or "disassembling" of gear contemplated is the taking apart of units of gear to the

extent necessary to determine the suitability of such gear for continued service and as may be specifically required to carry out the intent of a particular regulation in this subpart. After proof load tests the disassembling need not include the sheaves and pins of the blocks included in the test unless there appears to be evidence of deformation or failure.

(c) *Thorough examination.* The "thorough examination" contemplated is a visual examination, supplemented if necessary by other means such as by a hammer test or by a test with electronic or ultrasonic devices.

(d) *Ton.* The word "ton" means a ton of 2,240 pounds.

(e) *Safe working load.* The "safe working load" (SWL) contemplated is the load the gear is approved to lift, excluding the weight of the gear itself.

§ 91.37–5 Tests and examinations of shipboard cargo gear.

(a) For vessels fitted with cargo gear and without valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, inspections shall be made by competent persons described in § 91.25–25 (c) (1) and (2) to determine the condition and suitability of the shipboard cargo gear. For the initial and subsequent quadrennial inspections, all the cranes, winches, hoists, derrick booms, derrick and mast bands, and all parts used in loading or unloading cargo shall be assembled in units and such assembled units shall then be tested under proof loads. The proof loads shall be handled for various types of units as required by specific regulations in this subpart. After the proof load tests of the assembled units of gear have been made, such gear shall be disassembled or dismantled so as to permit them to be thoroughly examined. The sheaves and pins of the blocks included in these proof load tests need not be removed unless there appears to be evidence of deformation or failure.

(b) For vessels fitted with cargo gear and holding valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, the marine inspectors may accept such certificates as prima facie evidence of compliance with the requirements in this subpart. If an Officer in Charge, Marine Inspection, is in doubt as to the condition and suitability of shipboard cargo gear for such a vessel, the tests and examinations, or such portions thereof as deemed necessary, provided for in this subpart will be required.

(c) If any part or portion of the gear fails or becomes defective during such tests, such defective equipment shall be satisfactorily repaired or replaced.

§ 91.37–10 Cargo gear of special design and limited use.

(a) The regulations in this subpart shall apply to cargo gear of special design and limited use (derrick barges rigged for heavy lifts, cargo booms on self unloaders, etc.) only to the extent that it is practicable to do so. These requirements may be modified by the Officer in Charge, Marine Inspection, where the inspection is performed according to the design characteristics of such cargo gear.

(b) Nondestructive tests, such as radiography, ultrasonic, electronic or other methods, may be utilized to determine the condition of heavy lift gear after it has been unit tested, provided such methods are acceptable to the Officer in Charge, Marine Inspection, having cognizance of the tests. However, no deviations or modifications shall be permitted to lessen the requirements for cargo gear inspection as set forth in § 91.37–70 and the maintenance of the applicable cargo gear records as set forth in § 91.37–75.

§ 91.37–15 Cargo gear plans required when plans are not approved by a classification society.

(a) For a new vessel or a vessel applying for initial inspection, the following plans of cargo gear shall be submitted in triplicate to the Officer in Charge, Marine Inspection, having jurisdiction for approval:

(1) Plans showing a stress diagram with the principal details of the gear.

(2) Plans containing a diagram showing the arrangement of the assembled gear and indicating the safe working load for each component part.

(b) The safe working load on which the design of any component part of the cargo gear is to be based, shall be taken as the maximum resultant load upon the component part in the design conditions assumed. The safe working load of the assembly is the load the gear is approved to lift, excluding the weight of the gear itself.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 91.37–20 Cargo gear plans approved by a classification society.

(a) The plans required by § 91.37–15(a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by the American Bureau of Shipping or similar classification society recognized by the Commandant.

(b) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 91.37–25 Factors of safety.

(a) In the design of the cargo gear, the safety factors in Table 91.37–25(a), taken in association with suitable design assumptions for actual loading conditions, shall be used and regarded as minima.

TABLE 91.37–25(a)

Safe working loads for component parts	Safety factors based on—		
	Ultimate strength	Yield point	Breaking test load
All metal structural parts, except steel booms:			
When the working load of the assembled gear is 10 tons or less	[1] 5	----------	----------
When the working load of the assembled gear is 13 tons or over	[1] 4	----------	----------
Steel booms:			
When the working load of the assembled gear is 10 tons or less	----------	[1] 3	----------
When the working load of the assembled gear is 13 tons or over	----------	[1] 2½	----------
Wooden structural parts	8	----------	----------
Chains	4½	----------	----------
Wire rope:			
For working loads 10 tons or under	----------	----------	5
For working loads over 10 tons	----------	----------	4
Fiber rope:			
When intended for running rigging	7	----------	----------
When intended for fixed gear and vangs	5	----------	----------

[1] For working loads between 10 and 13 tons, intermediate values of safety factors may be used.

(b) The Commandant will give consideration to the use of factors of safety differing from those given in Table 91.37–25(a) where special materials or cargo gear of special design are to be used.

§ 91.37–30 Loose gear certificates and tests.

(a) (1) Evidence of compliance with the proof load test requirements in this section for all chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used as ship's cargo gear shall be listed on an appropriate certificate.

(2) This evidence of test and the recording thereof is required only once with respect to each article of gear so long as each article is identified and the certificates required are available on the vessel.

(3) Proof loads applied to the articles of loose gear shall be as shown in Table 91.37–30(a) (3).

TABLE 91.37–30(a) (3)

Articles of gear	*Proof load*
Chains, rings, hooks, links, shackles, swivels	Twice the safe working load.
Single sheave block	Four times the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.	Twice the safe working load.
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block over 40 tons	One and a half times the safe working load.
Roller chains (pitched chains) used with hand operated chain falls, and rings, hooks, shackles, or swivels permanently attached thereto.	Do.
Chain fall blocks used with roller chains (pitched chains), and rings, hooks, shackles, or swivels permanently attached thereto.	Do.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin when lifting the safe working load attached to a rope which passes around the sheave of the block. The proof load is, therefore, equal to four times the safe working load or twice the safe working load when the load is attached directly to the block instead of a rope passing around the sheave.

(b) All chains, rings, hooks, links, shackles, swivels, blocks and any other loose gear whether accessory to a machine or not, but which is used or intended for use as ship's cargo gear, shall bear a mark or number by which each piece can be identified and shall be listed on a loose gear certificate. The safe working load "SWL" shall be marked on all blocks.

(c) The certificate shall show the distinguishing number or mark applied to the articles of gear; a description of the articles of gear; the date when the test proof load was applied; and the safe working load. The forms for loose gear certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes of this section.

(d) After being tested all of the gear shall be examined to ascertain whether any part has been damaged, permanently deformed by the test or has other visible defects. The pins and sheaves of all tested blocks shall be removed for this purpose. If damaged during these tests, such gear shall be satisfactorily repaired or replaced.

(e) The required examinations as set forth in paragraph (d) of this section may be accomplished by mechanical, electrical or other means provided the method employed is equal in efficiency to the visual examination of disassembled gear.

§ 91.37–35 Test and certification of wire rope.

(a) All wire rope used as shipboard cargo gear shall be able to withstand a breaking test load of at least five times the safe working load. In the case of gear with a lifting capacity of over 10 tons, the breaking test load of wire rope shall be at least four times the safe working load. All wire rope shall be identified and described in a wire rope certificate. Such certificate shall be furnished and attested to by the manufacturer or a testing agency and shall certify:

(1) The breaking test load of a sample of the wire rope, which should be at least five times the safe working load or at least four times the safe working load if part of gear with a lifting capacity of over 10 tons;

(2) The name and address of the manufacturer;

(3) The diameter of the rope in inches and/or fractions thereof;

(4) The number of strands and the number of wires in each strand;

(5) The quality of the wire (e.g. improved plow steel);

(6) The date of the test; and,

(7) The load at which the sample broke.

(b) The forms for the wire rope certificates shall be prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(c) In addition to the manufacturers' or testing agencies' attestations, a sample of the wire rope may be tested to destruction if required by the marine inspector when a visual inspection indicates an apparent defective condition.

§ 91.37–40 Proof test of cargo gear as a unit.

(a) Winches with their accessory gear, including the derricks and attachments, at least once in each four years, shall be tested as a unit with proof loads exceeding the safe working load as set forth in Table 91.37–40(a).

TABLE 91.37–40(a)

Safe working load of assembled gear	*Proof load*
Not exceeding 20 tons	25 percent in excess.
Over 20 tons but not exceeding 50 tons.	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load applied to winches and their gear shall be lifted with the ship's normal tackle including the winches and with the boom at an angle which should not be greater than 15 degrees to the horizontal or to the lowest angle approved in association with the design, or when these angles are impracticable to the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(1) Where electrical winches are fitted with electromagnetic or hydraulic brakes at the winch, mechanical brakes for manual operation will not be required, but if so fitted shall be in satisfactory operating condition.

(2) Current for electric winch operation during the test shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

(c) Cranes and other hoisting machines with their accessory gear, at least once in each four years, shall be tested with a proof load which shall exceed the safe working load as set forth in Table 91.37–40(a).

(d) The proof load applied to cranes and hoists shall be lifted, topped and swung (slewed) as far as possible in each direction. If the boom of the crane has a movable radius, it shall be tested with a proof load as set forth in this section at the maximum and minimum radii of the boom. In the case of hydraulic cranes whose capacity is limited by pressure, and with which it is not possible to lift a load 25 percent in excess of the safe working load, the greatest possible load in excess of the safe working load shall be used. These tests and the amounts of the loads shall be recorded.

(e) After satisfactory completion of the proof load testing of the cargo gear in accordance with paragraphs (a), (b), (c) and (d) of this section, the cargo gear and all component parts shall be given a thorough visual examination, supplemented as necessary by other means such as a hammer test or with electronic or ultrasonic devices, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use. If found defective, such gear shall be replaced.

(1) When the test is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there appears to be evidence of deformation or failure.

(2) For subsequent tests such parts of the machinery and gear shall be dismantled and/or disassembled after the test as necessary to determine its suitability for continued service.

(f) Appropriate means shall be provided to prevent the foot of the boom from being accidentally lifted from the socket during the test.

(g) Vessels whose cargo gear has been in use but are without the valid registers and certificates described in § 91.25–35 shall be inspected for defective cargo gear. The gear shall then be tested and examined as prescribed in this section. If the movable weights for proof testing are not reasonably available, a spring or hydraulic scale certified for accuracy may be used. Whenever such scales are used, the proof load shall be applied with the boom swung out as far as possible in one direction and then in the other direction and at such intermediate positions as may be indicated. At any position, the indicator of the scale must maintain a constant reading under the proof load for a period of five minutes.

(h) On all types of winches and cranes efficient means shall be provided to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated.

(1) Electric winches, electrohydraulic winches fitted with electromagnetic or hydraulic brakes at the winch, or cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator.

(2) Current for electric winches and crane operation during the tests shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

§ 91.37–45 Marking of booms and cranes.

(a) The safe working load (abbreviated "SWL") for the assembled gear shall be marked on the heel of each boom with the minimum angle to the horizontal for which the gear is designed. These letters and figures shall be in contrasting colors to the background and at least one inch in height.

(b) Where the boom is rated at varying capacities depending on the radius, tables indicating the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the operator when working the gear.

§ 91.37–50 Use of wire rope and chains.

(a) An eye splice made in any wire rope used as cargo gear, with or without a thimble, shall have at least three tucks with whole strands and two tucks with one half the wire cut from the tucking stand: *Provided,* That this requirement shall not preclude the use of any other form of splice or connection if it is as efficient as the splice specified.

(b) Single wire rope cargo falls, wire rope pendants, topping lifts and pre-

venters shall consist of clear lengths without splices except at the working ends. Wire rope clips shall not be used to form eyes in the working ends of single wire rope cargo falls.

(c) Wire rope shall not be used for shipboard cargo gear if in any length of 8 diameters, the number of visible broken wires exceeds ten percent of the total number of wires in the rope, or if the rope shows other signs of excessive wear, corrosion, kinking, or defect.

(d) Hoisting or sling chains used for shipboard cargo gear shall not be used if a length of chain has been stretched more than five percent of the original length, or the chain has become unsafe through overloading or faulty heat treatment, or whenever other external defects are evident.

(e) Chains used for shipboard cargo gear shall not be shortened by knotting, bolting, or wiring the links. The use of chains having a knot or kink as shipboard cargo gear is prohibited.

§ 91.37–55 Annealing.

(a) Chains, hooks, rings, links, shackles, and swivels of wrought iron used as cargo gear shall be annealed at the following intervals:

(1) Wrought iron chains and gear in general use and of one-half inch or less, at least once in every six months.

(2) All other wrought iron chains and gear, including topping lift chains, in general use, at least once in every twelve months.

(b) The annealing shall be done in a suitable closed oven and not over an open fire. Wrought iron shall be annealed at a temperature of between 1100° and 1200° Fahrenheit for a period of between 30 and 60 minutes. After being annealed, the article shall be allowed to cool slowly and shall be then tested completely for defects.

(c) The heat treatment of the cargo gear shall be done only by reputable firms having suitable equipment and personnel trained for this purpose. A certificate attesting to the annealing of all gear heat treated shall be furnished to the vessel.

(d) The heat treatment of chains, hooks, rings, links, shackles, and swivels of materials other than wrought iron used as cargo gear, if required, shall be effected in accordance with the manufacturers' instructions.

§ 91.37–60 Additions to gear.

(a) When articles of loose gear and/or wire rope conforming with the requirements in this subpart are added to installed gear, or used as replacements in such gear from time to time, a record shall be maintained on the vessel which shall identify each article and the certificate accompanying it.

§ 91.37–65 Alterations, renewals, or repairs of cargo gear.

(a) Whenever important repairs, renewals, or alterations are indicated or intended for the masts, booms, and permanent fittings of the cargo gear, such repairs, renewals, or alterations shall be undertaken only after compliance with the applicable provisions of § 91.45–1.

(b) Tests and examinations of the repairs, renewals, or alterations shall be in accordance with the provisions of § 91.37–40.

(c) When welding is used to lengthen, alter, or repair chains, rings, hooks, links, shackles, or swivels, they shall be properly heat treated and shall before being again put into use, be tested and examined in accordance with the provisions of § 91.37–30.

§ 91.37–70 Responsibility of ship's officer for inspection of cargo gear.

(a) All wire rope, chains other than bridle chains attached to booms or masts, and all rings, hooks, links, shackles, swivels and blocks used in loading or unloading shall be visually inspected by a ship's officer designated for that purpose by the master.

(b) These inspections by a ship's officer shall be made at frequent intervals, and in any event not less than once in each month.

(c) Immediately after such an inspection by a ship's officer notations of such an inspection shall be made in record form which shall be in or kept with the cargo gear register if carried. In addition, the same notations of inspections together with the date shall be entered in the Official Logbook for those vessels required to carry this record, or such information shall be kept with the log records maintained on vessels not required to carry the Official Logbook. (See § 91.37–75 for entries required to be kept.)

§ 91.37–75 Records regarding cargo gear.

(a) The cargo gear records described in this subpart shall be maintained on the vessel and shall be made available to Coast Guard officials upon request. These records shall be kept for the periods of time they are valid and, in addition, until the next Coast Guard inspection for certification of the vessel. The certificates of manufacturers and/or testing laboratories, companies, or organizations shall be maintained on the vessel so long as the gear described in such certificates is on board the vessel.

(b) The records of all the inspections of cargo gear made by the ship's officers in accordance with § 91.37–70 shall be maintained on the vessel for periods of time which agree with those periods as covered by the current Coast Guard certificate of inspection issued to the vessel. These records show the dates of inspections, identify articles inspected, the conditions observed, and the name of the officer performing the inspection.

(c) The records of all tests and examinations conducted by or under the supervision of surveyors of the organizations or associations approved by the Commandant shall be maintained on the vessel.

(d) The Coast Guard will not issue cargo gear certificates and/or registers. The Coast Guard's records of inspections, tests, and examinations of a particular vessel's cargo gear made by a marine inspector or conducted under the supervision of the Coast Guard will be maintained in the office of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel at the time such work was performed. The original certificates or certified copies of certificates of manufacturers and/or testing laboratories, companies, or organizations for loose cargo gear, wire rope, or the annealing of gear shall be maintained on the vessel.

§ 91.37–80 Advance notice that cargo gear testing is desired.

(a) The owner, agent, or master of a vessel shall give an advance notice when it is desired that the tests and examinations of cargo gear be made by or under the supervision of the marine inspector. This advance notice shall be given to the Officer in Charge, Marine Inspection, in whose marine inspection zone the vessel is available for such inspection and examination.

(b) For the initial inspection and examination of cargo gear by the Coast Guard, the advance notice shall be to the cognizant Officer in Charge, Marine Inspection, as early as possible and shall include sketches and/or drawings showing each unit of cargo gear, the identification of component parts and the safe working loads. Copies of original certificates of manufacturers and/or testing laboratories, companies, or organizations maintained on the vessel may be accepted by the cognizant Officer in Charge, Marine Inspection, when satisfied such certificates properly describe the qualities of the component parts of the gear in question.

§ 91.37–85 Responsibility for conducting required tests and examinations.

(a) The vessel's owners and/or operators shall furnish and pay the expenses required in conducting the tests and examinations prescribed by the regulations in this subpart, including the supplying of all instruments, other equipment, and personnel including personnel supervision for performance of all work required.

(b) The Coast Guard's participation in these required tests and examinations shall be confined to witnessing required tests and examinations with the view to determining whether or not the gear is satisfactory for the purpose intended. In the event it is determined that the gear is defective or unable to meet the standards set forth in this subpart such gear, or portions thereof, shall be replaced to the satisfaction of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel.

Subpart 91.55—Plan Approval

3. Section 91.55–5(b) is amended by adding a new subparagraph (13) reading as follows:

§ 91.55–5 Plans and specifications required for new construction.

* * * * * * *

(b) * * *

(13) *Arrangement of the cargo gear including a stress diagram. The principal details of the gear and the safe working load for each component part shall be shown.

(R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4418, as amended, 4421, as amended, 4423, as amended, 4426–4431, as amended, 4433, as amended, 4434, as amended, 4453, as amended, 4488, as amended, 4490, as amended, sec. 3, 29 Stat. 129, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 392, 399, 400, 404–409, 411, 412, 435, 481, 482, 366, 395, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.)

PART 97—OPERATIONS

Subpart 97.70—Power-Operated Industrial Trucks

Part 97 is amended by adding at the end thereof a new Subpart 97.70 entitled, "Power-Operated Industrial Trucks," consisting of §§ 97.70–1 to 97.70–35, inclusive, reading as follows:

Sec.

97.70–1 Application.
97.70–3 Alternates.
97.70–5 Definitions of terms used in subpart.
97.70–7 Approved power-operated industrial trucks.
97.70–10 Use of power-operated industrial trucks in various locations.
97.70–15 Special operating conditions.
97.70–20 Refueling.
97.70–25 Charging or replacing batteries.
97.70–30 Stowage of power-operated industrial trucks aboard a vessel.
97.70–35 Stowage of fuel handling devices aboard a vessel.

AUTHORITY: §§ 97.70–1 to 97.70–35 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417a, as amended, 4426, as amended, 4472, as amended, 4488, as amended, 4491, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391a, 404, 170, 481, 489, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp.

§ 97.70–1 Application.

(a) *Power-operated industrial trucks.* (1) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks carried on board a vessel as part of the vessel's equipment for handling materials of any kind shall be in compliance with the applicable provisions of this subpart.

(2) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks placed on board vessels for handling materials of any kind shall be in compliance with the applicable provisions of this subpart when such vessels are within the navigable waters of the United States, its territories and possessions but not including the Panama Canal Zone.

(3) When power-operated industrial trucks are used in spaces not containing dangerous or hazardous articles, as set forth in § 97.70–10(f), the installation of the minimum safety features of § 97.70–7(c) shall be carried out at the earliest opportunity but in any case not later than July 1, 1963.

(b) *Vessels.* (1) Vessels shall be in compliance with the applicable provisions of this subpart during those periods of time when power-operated industrial trucks are on board as part of the vessel's equipment or when such trucks are placed on board for handling materials of any kind.

NOTE: The regulations affecting the use of power-operated industrial trucks on foreign vessels are in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels), or in the case of foreign tank vessels in Subpart 35.70 of Subchapter D (Tank Vessels) of this chapter.

§ 97.70–3 Alternates.

(a) In cases of undue hardship resulting from unavoidable delays in bringing existing power-operated industrial trucks into compliance with the applicable provisions of this subpart, the Commandant may permit the use of alternate equipment, apparatus, or arrangement for such period of time, and to such extent, and upon such conditions as will assure, to the Commandant's satisfaction, a degree of safety consistent with the minimum standards as set forth in this subpart.

(b) The methods and procedures adopted in connection with the modification of existing equipment to meet required laboratory designations will be taken into consideration in granting permission to use alternate arrangements for a limited period of time.

§ 97.70–5 Definitions of terms used in subpart.

(a) Power-operated industrial trucks are considered to be tractors, lift trucks, and other specialized industrial trucks used for material handling on board a vessel.

(b) For the purpose of the regulations in this subpart, the words "flammable" and "inflammable" are interchangeable or synonymous terms.

§ 97.70–7 Approved power-operated industrial trucks.

(a) Where approved power-operated industrial trucks are required by the regulations in this subchapter such approved trucks shall have a specific designation of a recognized testing laboratory. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' Laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Illinois) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood; Massachusetts for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(b) Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a "G" unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(c) In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable:

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the car-

riage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand, or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

§ 97.70–10 Use of power-operated industrial trucks in various locations.

(a) *Spaces containing explosives.* (1) Except as otherwise provided in this paragraph, power-operated industrial trucks shall not be used in a space in which Class A, Class B, or Class C explosives are stowed.

NOTE: Class A, Class B and Class C explosives are defined in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(2) The Commandant may grant authority for the use of approved power-operated industrial trucks with a recognized testing laboratory designation of EX in spaces in which Class A, Class B or Class C explosives are stowed when it can be shown that such trucks can be used with safety.

(3) In a space in which packaged small arms ammunition without explosive bullets is stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, LPS, GS and DS may be used for handling cargo including the handling of such packaged small arms ammunition.

(b) *Spaces containing flammable liquids.* (1) In a space in which packaged flammable liquids are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable liquids.

(c) *Spaces containing flammable solids or oxidizing materials.* (1) In a space in which packaged flammable solids or oxidizing materials are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable solids or oxidizing materials.

(2) When flammable solids or oxidizing materials are contained in closed cargo vans or closed containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 97.70–7(c) may be used in the spaces.

(3) When oxidizing materials in bulk are stowed in the holds or compartment, any approved commercial type power-operated industrial truck may be used in the spaces.

(d) *Spaces containing hazardous articles of a fibrous nature.* (1) In a space in which packaged hazardous articles of a fibrous nature are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS and DS may be used for handling cargo including the handling of such packaged hazardous articles of a fibrous nature.

(2) When hazardous articles of a fibrous nature are contained in closed cargo vans or closed portable containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 97.70–7(c) may be used in the spaces.

(e) *Spaces containing other dangerous cargoes and hazardous articles.* (1) In a space in which dangerous cargoes or hazardous articles subject to the regulations in Part 146 of this chapter except those provided for in paragraphs (a), (b), (c) and (d) of this section, any approved power-operated industrial truck may be used to handle cargo including the handling of such dangerous cargoes or hazardous articles.

(f) *Other spaces.* (1) Any standard commercial type power operated industrial truck in safe operating condition and having the minimum safety features of § 97.70–7(c) may be used in spaces and for handling cargo in spaces not otherwise restricted by regulation in this subpart.

§ 97.70–15 Special operating conditions.

(a) Notification shall be given to the master or senior deck officer on board before placing power-operated industrial trucks in use aboard the vessel.

(b) When power-operated industrial trucks are in use on board vessels subject to the regulations in this subchapter, they shall be in a safe operating condition.

(c) Spaces exposed to carbon monoxide or other hazardous vapors from the exhausts of power-operated industrial trucks shall have adequate ventilation. The concentration of carbon monoxide shall be kept below 100 parts per million in the holds and intermediate decks where persons are working. When necessary, portable blowers of adequate size and location shall be utilized.

(d) The parts and/or equipment of any power-operated industrial truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(e) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(f) When the temperature of any part of the truck is found to be in excess of a safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(g) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(h) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(i) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(j) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(k) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

§ 97.70–20 Refueling.

(a) *When permitted.* Power-operated industrial trucks are not permitted to be refueled in the hold of a vessel or on the weather deck except under the following conditions:

(1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable nonspilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable nonspilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shut-off valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shutoff valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(b) *General requirements.* The following conditions must be met when refueling power-operated industrial trucks in the hold of a vessel or on the weather deck under the circumstances listed in paragraph (a) of this section:

(1) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(2) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(3) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area. This is in addition to portable extinguisher affixed to the truck in accordance with § 97.70–15(j).

(4) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area and smoking shall be prohibited.

(5) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of § 97.70–15(c) when trucks are operating shall also apply when trucks are being refueled.

(6) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(7) All fuel handling devices and unmounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

§ 97.70–25 Charging or replacing batteries.

(a) Batteries for electrically-powered industrial trucks and for the ignition systems of internal combustion engine-powered industrial trucks may be changed in the hold of a vessel provided the following conditions are met:

(1) Suitable handling equipment shall be employed.

(2) Adequate precautions shall be taken to avoid damage to the battery, short circuiting of the battery, and spillage of the electrolyte.

(b) Batteries of electrically-powered industrial trucks may be recharged in a hold of a vessel provided the following conditions are met:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock shall be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The hold shall not contain any cargo coming under the regulations in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(4) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(c) All unmounted batteries shall be suitably protected or removed from an area in the hold of the vessel before trucks are operated in that area.

§ 97.70–30 Stowage of power-operated industrial trucks aboard a vessel.

(a) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(1) Gasoline powered trucks shall have all the fuel expended from the system.

(2) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(b) Power-operated industrial trucks not meeting the conditions set forth in paragraph (a) of this section shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

§ 97.70–35 Stowage of fuel handling devices aboard a vessel.

(a) Flammable liquids and gases to be used as fuels for power-operated industrial trucks shall be marked, labeled and stowed as follows:

(1) They shall be stowed in ICC specification containers, A.S.M.E. containers or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(2) Containers shall be marked with the name of the contents and shall be labeled in accordance with ICC requirements as follows:

(i) Flammable liquids—"Red Label"; or,

(ii) Flammable gases—"Red Gas Label".

(3) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing laboratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(b) Diesel fuel shall be stowed in locations designated by the master.

SUBCHAPTER N—EXPLOSIVES OR OTHER DANGEROUS ARTICLES OR SUBSTANCES AND COMBUSTIBLE LIQUIDS ON BOARD VESSELS

PART 146—TRANSPORTATION OR STORAGE OF EXPLOSIVES OR OTHER DANGEROUS ARTICLES OR SUBSTANCES, AND COMBUSTIBLE LIQUIDS ON BOARD VESSELS

Subpart—List of Explosives or Other Dangerous Articles Containing the Shipping Name or Description of Articles Subject to the Regulations in This Subchapter

1. Section 146.04–5 is amended by adding and changing certain items as follows:

§ 146.04–5 List of explosives and other dangerous articles and combustible liquids.

Article	Classed as—	Label required [1]
Items added		
Engine starting fluid	Inf. G	Red gas.
*Mercurial liquid, n.o.s. (see: "Poisonous Liquids, n.o.s.")	Pois. B	Poison.
Monobromotrifluoromethane	Noninf. G	Green gas.
Nitrogen tetroxide—nitric oxide mixtures containing up to 33.2% weight nitric oxide (see: "Nitrogen dioxide, liquid").	Pois. A	Poison gas.
Propellant explosives (solid), Class B, and small arms primers (see: "Propellant explosives, Class B").		
Propylene imine, inhibited (see: "Ethylene imine inhibited")	Inf. L	Red.
Spray starting fluid (see: "Engine starting fluid").		
Items changed		
Nitrocellulose, colloided, granular, flake or block wet with alcohol or solvent (see: "Wet nitrocellulose colloided, granular or flake—20% alcohol or solvent; or block—25% alcohol").		
Oleum (see: "Sulfuric acid")	Cor. L	White.
Vinyl acetate	Inf. L	Red.
Wet nitrocellulose, colloided, granular or flake—20% alcohol or solvent; or block—25% alcohol.	Inf. L	Red.

[1] Unless otherwise exempt by the provisions of the detailed regulations.

Subpart—Cargo Handling and Stowage Devices, U.S. Coast Guard Container Specifications

2. Part 146 is amended by inserting after § 146.09–12 a new § 146.09–15 reading as follows:

§ 146.09–15 Power-operated industrial trucks.

(a) *Definition.* Power-operated industrial trucks are considered to be tractors, lift trucks and other specialized industrial trucks used for material handling on board a vessel. These trucks may be either vessel's equipment or stevedore's equipment.

(b) *Approved power-operated industrial trucks.* Where approved power-operated industrial trucks are required by the regulations in this part such approved trucks shall have a specific designation of a recognized testing laboratory. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Illinois) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood, Massachusetts for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(c) *Description of designations.* Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a "G" unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(d) *Minimum safety features.* In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable:

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the carriage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand, or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

(e) *Special operating conditions.* (1) Notification shall be given to the master or senior deck officer on board before placing power-operated industrial trucks in use aboard the vessel.

(2) When power-operated industrial trucks are in use on board vessels subject to the regulations in this part, they shall be in a safe operating condition.

(3) Spaces exposed to carbon monoxide or other hazardous vapors from the exhausts of power-operated industrial trucks shall have adequate ventilation. The concentration of carbon monoxide shall be kept below 100 parts per million in the holds and intermediate decks where persons are working. When necessary, portable blowers of adequate size and location shall be utilized.

(4) The parts and/or equipment of any power-operated truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(5) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(6) When the temperature of any part of the truck is found to be in excess of a safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(7) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(8) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(9) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(10) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(11) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

(f) *Refueling.* (1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable non-spilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable non-spilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shut-off valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shut-off valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(4) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(5) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(6) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area. This is in addition to portable extinguisher affixed to the truck in accordance with paragraph (e)(10) of this section.

(7) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area and smoking shall be prohibited.

(8) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of paragraph (e)(3) of this section when trucks are operating shall also apply when trucks are being refueled.

(9) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(10) All fuel handling devices and unmounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

(g) *Replacing batteries.* Batteries for electrically-powered industrial trucks and for the ignition systems of internal combustion engine-powered industrial trucks may be changed in the hold of a vessel provided the following conditions are met:

(1) Suitable handling equipment shall be employed.

(2) Adequate precautions shall be taken to avoid damage to the battery, short circuiting of the battery, and spillage of the electrolyte.

(h) *Charging of batteries.* Batteries of electrically-powered industrial trucks may be recharged in a hold of a vessel provided the following conditions are met:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the changing of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used an additional interlock shall be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The hold shall not contain any cargo coming under the regulations prescribed in this subchapter.

(4) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(5) All unmounted batteries shall be suitably protected or removed from an area in the hold of the vessel before trucks are operated in that area.

(i) *Stowage of power-operated industrial trucks aboard a vessel.* (1) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(i) Gasoline powered trucks shall have all the fuel expended from the system.

(ii) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(2) Power-operated industrial trucks not meeting the conditions set forth in subparagraph (1) of this paragraph shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

(j) *Stowage of fuel handling devices aboard a vessel.* (1) Flammable liquids and gases to be used as fuels for power-operated industrial trucks shall be marked, labeled and stowed as follows:

(i) They shall be stowed in ICC specification containers, A.S.M.E. containers or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(ii) Containers shall be marked with the name of the contents and shall be labeled in accordance with ICC requirements as follows:

(*a*) Flammable liquids—"Red Label"; or,

(*b*) Flammable gases—"Red Gas Label."

(iii) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing laboratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(2) Diesel fuel shall be stowed in locations designated by the master.

Subpart—Detailed Regulations Governing Explosives

3. Section 146.20–3 is amended by changing paragraph (q) to read as follows:

§ 146.20–3 Prohibited or not permitted explosives.

* * * * *

(q) New explosives except samples for laboratory examination and military explosives approved by the Chief of Ordnance, Department of the Army; Chief, Bureau of Naval Weapons, Department of the Navy; or Chief, Air Force Logistics Command, Department of the Air Force. All other new explosives must be approved for transportation by the Interstate Commerce Commission.

4. Section 146.20–11 is amended by changing paragraph (y) to read as follows:

§ 146.20–11 Class C explosives.

* * * * *

(y) Smoke candles, smoke pots, smoke grenades, and smoke signals containing not more than 200 grams of pyrotechnic composition each exclusive of smoke compositions, without bursting charges, hand signal devices, very signal cartridges, and highway or railway fusees are devices designed to produce visible effects for signal purposes.

(1) Pyrotechnic compositions (other than smoke compositions) are defined as chemical mixtures which on burning and without explosion produce visible or brilliant displays or bright lights.

(2) Pyrotechnic smoke compositions are defined as chemical smoke producing mixtures, which on ignition burn at a controlled rate, without the production of flame and without the build-up of internal pressure that would rupture or burst the end product.

5. Section 146.20–35(e) is amended to read as follows:

§ 146.20–35 Handling explosives.

* * * * *

(e) Except as otherwise provided in this paragraph, power operated industrial trucks shall not be used in a space in which Class A, Class B, or Class C explosives are stowed.

(1) The Commandant may grant authority for the use of approved power operated industrial trucks with a recognized testing laboratory designation of "EX" (see § 146.09–15) in spaces in which Class A, Class B, or Class C explosives are stowed when it can be shown that such trucks can be used with safety.

(2) In a space in which packaged small arms ammunition without explosive bullets is stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of "EX," "EE," "LPS," "GS" and "DS" (see § 146.09–15) may be used for handling cargo including the handling of such packaged small arms ammunition.

6. Section 146.20–100 *Table A—Classification: Class A; dangerous explosives* is amended as follows:

a. Amend "High explosives (*wet with not less than 10 pounds of water to each 90 pounds of dry material*)" as follows:

i. In column 4, change "Fiber drums, etc." to read:

Fiber drums (ICC–21A, 21B) WIC not over 225 lb. net dry wt.

7. Section 146.20–200 *Table B—Classification: Class B; less dangerous explosives* is amended as follows:

a. Amend "Propellant explosives (solid), Class B" as follows:

i. In column 2, delete paragraph 4 and insert the following:

Not more than 1,000 small arms primers may be included in one outside shipping container with solid propellant explosives. The inside container shall meet ICC requirements and be so packed as to prevent movement in the outside container.

Each outside container must be plainly marked "Propellant Explosives (solid), Class B" or "Propellant Explosives (solid), Class B and Small-Arms Primers."

Subpart—Detailed Regulations Governing Inflammable Liquids

8. Part 146 is amended by inserting after § 146.21–55 a new § 146.21–57 reading as follows:

§ 146.21–57 Use of power-operated industrial trucks in spaces containing flammable liquids.

(a) In a space in which packaged flammable liquids are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS (see § 146.09–15) may be used for handling cargo including the handling of such packaged flammable liquids.

9. Section 146.21–100 *Table D—Classification: Inflammable liquids* is amended as follows:

a. Amend "Acrolein (*inhibited*)" as follows:

i. In column 4, amend "Metal drums (ICC–5A, 5B) etc." to read:

Metal drums (ICC–5, 5A, 5B) not over 55 gal. cap.

b. Amend the following items as indicated:

1. Acetaldehyde
2. Acetone, etc.
3. Alcohol, n.o.s., etc.
4. Allyl bromide
5. Amyl nitrite
6. Anti-freeze compounds, liquid, etc.
7. Benzene (benzol), etc.
8. Box toe gum
9. Butyl acetate
10. Butyraldehyde
11. Cement, leather, etc.
12. Cigar and cigarette lighter fluid
13. Coal tar distillate, etc.
14. Collodion
15. Compounds, cleaning, liquid, etc.
16. Compounds, lacquer, paint or varnish, etc. removing, etc.
17. Compounds, tree or weed killing, liquid
18. Crotonaldehyde
19. Crude oil, petroleum
20. Cyclohexane, etc.
21. Diethylamine, etc.
22. Dimethylamine, aqueous solution, etc.
23. Drugs, chemicals, medicines or cosmetics, n.o.s.
24. Ether, etc.
25. Ethyl acetate
26. Ethylene dichloride
27. Ethyl formate
28. Ethyl methyl ketone, etc.
29. Ethyl nitrite (nitrous ether)
30. Gas drips, hydrocarbon
31. Heptane
32. Hexane
33. Inflammable liquids, n.o.s.
34. Ink
35. Insecticide, liquid (vermin exterminator)
36. Isooctane, etc.
37. Isopentane, etc.
38. Isopropyl acetate
39. Methyl acetate, etc.
40. Methyl formate
41. Methyl iso-propenyl ketone, inhibited
42. Methyl methacrylate, monomer
43. Motor fuel, n.o.s.
44. Neohexane
45. Oil, etc.
46. Paints, enamel, lacquer, stain, shellac, etc.
47. Pentane, etc.
48. Polishes, metal, stove, furniture and wood, liquid
49. Propylene oxide
50. Pyridine
51. Resin solution (*resin compound, liquid*)
52. Road asphalt or tar, liquid
53. Sodium methylate, alcohol mixture
54. Solvents, n.o.s.
55. Toluol (toluene)
56. Turpentine substitutes, etc.
57. Vinylidene chloride, inhibited
58. Xylol (*xylene*)

i. In columns 4, 5, 6 and 7, if permitted, add:

Portable tanks (ICC–51) not over 20,000 lb. gr. wt.

c. Amend "Ethylene imine, inhibited" as follows:

i. In column 1, insert:

Propylene imine, inhibited

ii. In column 2, insert:

Similar characteristics and hazards as given for Ethylene imine.

iii. In column 3, insert:

Red

iv. In column 4, under "Outside containers" insert:

Wooden boxes (ICC–15A, 15B, 15C) WIC ICC–37B metal drum not over 5 gal. cap.
Metal barrels or drums (ICC–6A, 6B, 6C, 6J) WIC ICC–17E metal drum not over 30 gal. cap.

d. Amend "Vinyl acetate, inhibited" as follows:

i. In column 1, change "Vinyl acetate, inhibited" to read:

Vinyl acetate

e. Amend "Wet nitrocellulose, colloided, granular or flake, etc." as follows:

i. In column 1, insert:

Wet nitrocellulose, colloided, block forms (must contain at least 25 percent by weight of alcohol)

ii. In column 2, insert:

Characteristics and hazards similar to those above.

iii. In column 3, insert:

Red.

Subpart—Detailed Regulations Governing Inflammable Solids and Oxidizing Materials

10. Part 146 is amended by inserting after § 146.22–5 a new § 146.22–7 reading as follows:

§ 146.22–7 Use of power-operated industrial trucks in spaces containing flammable solids and oxidizing materials.

(a) In a space in which packaged flammable solids or oxidizing materials are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS (see § 146.09–15) may be used for handling cargo including the handling of such packaged flammable solids or oxidizing materials.

(b) When flammable solids or oxidizing materials are contained in closed cargo vans or closed containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having minimum safety features (see § 146.09–15) may be used in the space.

(c) When oxidizing materials in bulk are stowed in a hold or compartment, any approved commercial type power-operated industrial truck may be used in the space.

11. Amend section 146.22–25 by changing subparagraph (b) (1) to read as follows:

§ 146.22–25 Exemptions for inflammable solids and oxidizing materials.

* * * * *

(b) * * *

(1) Strong outside containers having not over 1 pint or 1 pound net weight of the material in any one outside package with inside containers securely packed and cushioned with incombustible cushioning material. Cushioning material is not required when the liquid is contained in strong, securely closed plastic containers not over 1 ounce capacity each, properly packaged to prevent breakage or leakage.

12. Section 146.22–100 *Table E—Classification: Inflammable solids and oxidizing materials* is amended as follows:

a. Amend "Calcium hypochlorite compounds, dry, etc." as follows:

i. In columns 4, 5, 6 and 7 under "Outside containers," insert:

Fiber drums (ICC–21B) WIL not over 400 lb. net wt.

b. Amend "Cumene hydroperoxide, etc." as follows:

i. In column 4, change "Wooden boxes, etc." to read:

Wooden boxes (ICC–15A, 15B, 15C, 16A, 19A) WIC not over 250 lb. gr. wt. Also authorized for Cumene hydroperoxide (strength not exceeding 96 percent in a non-volatile solvent).

Subpart—Detailed Regulations Governing Corrosive Liquids

13. Part 146 is amended by inserting after § 146.23–10 a new § 146.23–13 reading as follows:

§ 146.23–13 Use of power-operated industrial trucks in spaces containing corrosive liquids.

(a) Any approved power-operated industrial truck (see § 146.09–15) may be used in spaces in which corrosive liquids are stowed, including the handling thereof, unless otherwise restricted by regulations in this part.

14. Section 146.23–100 *Table F—Classification: Corrosive liquids* is amended as follows:

a. Amend the following items as indicated:

1. Acetyl chloride
2. Antimony pentochloride
3. Benzoyl chloride
4. Chromyl chloride
5. Pyro sulfuryl chloride
6. Sulfur chloride (mono and di)
7. Sulfuryl chloride
8. Thinoyl chloride
9. Tin tetrochloride (anhydrous)
10. Titanium tetrachloride

i. In column 4, under "Outside containers," change "Steel barrels or drums (ICC–5A) etc." to read:

Steel barrels or drums (ICC–5A, 5B) not over 110 gal. cap.

b. Amend "Chloracetyl chloride" as follows:

i. In column 4, add:

Tank cars complying with ICC regulations.

c. Amend "Chlorine trifluoride" as follows:

i. In column 4, add:

Tank cars complying with ICC regulations.

d. Amend "Hydrogen peroxide, etc." as follows:

i. In columns 4, 5, 6 and 7 under "Solution not over 52 percent strength by weight" add:

Fiberboard box (ICC–12B) WIC polyethylene bottles not over 16 oz. cap. each, not over 65 lb. gr. wt.

e. Amend "Sulfuric acid (oil of vitriol) etc." as follows:

i. In column 1, delete "Sulfuric acid fuming, etc." and insert:

Sulfuric acid, fuming: (nordhausen) Oleum

ii. In column 2, insert:

Sulfuric acid, fuming and oleum not permitted stowage "Under deck."

iii. In columns 4, 6 and 7, add:

Fiberboard boxes (ICC–12B) WIC of compatible plastic not over 1 gal. cap., not over 75 lb. gr. wt.

Subpart—Detailed Regulations Governing Compressed Gases

15. Section 146.24–15 is amended by adding a new paragraph (h) to read as follows:

§ 146.24–15 Containers.

* * * * *

(h) Engine starting fluid containing compressed gas or gases which are inflammable may be shipped in inside non-refillable metal containers of capacity not exceeding 32 cubic inches. Containers must be packaged in spec. 12B fiberboard boxes equipped with top and bottom pads which will provide three complete thicknesses of fiberboard on tops and bottoms of boxes, or spec. 15A, 15B, or 15C wooden boxes. Pressure in the container must not exceed 140 pounds per square inch, absolute, at 130° F. However, if the pressure exceeds 140 pounds per square inch, absolute at 130° F., a spec. 2P container must be used. In any event, the metal container must be capable of withstanding without bursting a pressure of one and one-half times the pressure of the content at 130° F. The liquid content of the material and gas must not completely fill the container at 130° F. Each completed container filled for shipment must have been heated until content reaches a minimum temperature of 130° F., without evidence of leakage, distortion, or other defect. Each outside shipping container must be plainly marked "Inside Containers Comply With Prescribed Specification" and be labeled with the "Red Gas" label.

16. Section 146.24–20 is amended by adding a new paragraph (i) to read as follows:

§ 146.24–20 Exemptions for compressed gases.

* * * * *

(i) Inside metal containers of a capacity not to exceed 35 cubic inches, charged with nonflammable, nonpoisonous liquefied compressed gas to be used in conjunction with audible fire alarm systems. Pressure in the container must not exceed 85 pounds per square inch absolute at 70° F. The completely assembled containers must be capable of withstanding without bursting a pressure of 1,000 pounds per square inch. The liquid portion of the gas must not completely fill the container at 130° F.

17. Part 146 is amended by inserting after § 146.24–25 a new § 146.24–27 reading as follows:

§ 146.24–27 Use of power-operated industrial trucks in spaces containing compressed gases.

(a) Power-operated industrial trucks with designations EX, EE, GS, LPS and DS (see § 146.09–15) may be used in spaces in which flammable compressed gases are stowed including handling thereof.

(b) Any approved power-operated industrial truck (see § 146.09–15) may be used in spaces in which non-inflammable compressed gases are stowed, including the handling thereof, unless otherwise restricted by regulations in this part.

18. Section 146.24–100 *Table G—Classification: Compressed gases* is amended as follows:

a. Amend item "Butadiene, inhibited" as follows:

i. In column 4, delete "Tank cars (ICC–104A, 104A–W) and insert:

Portable tank (ICC–51) not over 20,000 lb. gr. wt.

b. After "Dimethyl ether," insert the following:

i. In column 1, insert:

Engine starting fluid

ii. In column 2, insert:

An inflammable fluid containing an inflammable compressed gas or gases as an expellant.
Used as a fuel for starting engines.
See also § 146.24–15(h)

iii. In column 3, insert:

Red gas

iv. In column 4, insert:

Stowage:
"On deck protected"
"On deck under cover"
Containers:
Cylinders complying with ICC regulations.
(With valve protection cap)
(With dished heads)
(Boxed)

v. In columns 5, 6 and 7, insert:

Not permitted.

c. After "Methyl mercaptan," insert the following:

i. In colume 1, insert:

Monobromotrifluoromethane

ii. In column 2, insert:

Noninflammable gas
Nonpoisonous but excessive quantities in an enclosed space may cause suffocation.

iii. In column 3, insert:

Green gas

iv. In column 4, insert:

Stowage:
"On deck protected"
"On deck under cover"
"Tween decks readily accessible"
"Under deck away from heat"
Containers:
Cylinders complying with ICC regulations.
(With valve protection cap)
(With dished heads)
(Boxed)
Tank cars complying with ICC regulations.

v. In column 5, insert:

Stowage:
"On deck protected"
"On deck under cover"
"Tween decks readily accessible"
Containers:
Cylinders complying with ICC regulations.
(With valve protection cap)
(With dished heads)
(Boxed)

vi. In column 6, insert:

Ferry stowage (AA)
Containers:
Cylinders complying with ICC regulations.
(With valve protection cap)
(With dished heads)
(Boxed)

vii. In column 7, insert:

Ferry stowage (BB)
Containers:
Cylinders complying with ICC regulations.
Tank cars complying with ICC regulations.

d. Amend "Vinyl fluoride, inhibited" as follows:

i. In column 4 under "Outside containers," add:

Tank cars complying with ICC regulations.

Subpart—Detailed Regulations Governing Poisonous Articles

19. Section 146.25–5 is amended by adding an entry to the list to read as follows:

§ 146.25–5 Extremely dangerous poisons, Class A, poison gas label.

* * * * *

Nitrogen tetroxide-nitric oxide mixture containing up to 33.2 percent weight of nitric oxide.

20. Part 146 is amended by inserting after § 146.25–40 a new § 146.25–43 reading as follows:

§ 146.25–43 Use of power-operated industrial trucks in spaces containing poisonous articles.

(a) Any approved power-operated industrial truck (see § 146.09–15) may be used in spaces in which poisonous articles are stowed, including the handling thereof, unless otherwise restricted by regulations in this part.

21. Section 146.25–55 is amended by changing subparagraph (b) (1) to read as follows:

§ 146.25–55 Exemptions for poisons, Class B.

* * * * *

(b) * * *

(1) In inside glass, earthenware, or composition bottles or jars, or metal containers, or lock-corner sliding-lid wooden boxes, of not over 5 pounds capacity each, except carbolic acid (phenol) in glass containers must not exceed 1 pound capacity each; or chipboard, pasteboard, or fiber cartons, cans, boxes, or tightly closed strong plastic bags or bottles compatible with product of not over 1 pound capacity each, packed in outside wooden or fiberboard boxes, or wooden barrels or kegs. Net weight of contents of outside container not over 100 pounds.

22. Section 146.25–100 *Table H—Classification: Class A; extremely dangerous poisons* is amended as follows:

a. Amend "Hydrocyanic acid, etc." as follows:

i. In column 1, under "Outside containers," add the following:

Fiberboard box (ICC–12B) WIL, WIC ICC–2N metal cans not over 41 oz. net wt. Outside container must be metal strapped, not over 70 lb. gr. wt.

b. Amend the item "Nitrogen dioxide, liquid" as follows:

i. In column 1, add the following after nitrogen peroxide (tetroxide):

Nitrogen tetroxide-nitric oxide mixtures containing up to 33.2 percent weight of nitric oxide.

23. Section 146.25–200 *Table H—Classification: Class B; less dangerous poisons* is amended as follows:

a. Amend "Carbolic acid (phenol) not liquid" as follows:

i. In columns 4, 5, 6 and 7, insert under "Fiberboard boxes":

(ICC–12A) WIC not over 20 lb. net wt.

b. Amend the following items as indicated:

Parathion mixtures, liquid (*containing not more than 50 percent parathion by weight*), etc.
Tetraethyl pyrophosphate mixtures, liquid (*containing not more than 50 percent tetraethyl pyrophosphate by weight*), etc.

i. In columns 4, 5, 6 and 7 under "Authorized only for mixtures that are not classified as flammable, etc," insert:

Steel drum (ICC–37B) STC, not over 5½ gal. cap.

c. Amend the following items as indicated:

Parathion mixtures, dry, etc.
Tetraethyl pyrophosphate mixtures, dry, etc.

i. In columns 4, 5, 6 and 7 change "Authorized for dry mixtures not exceeding 27 percent by weight, etc." to read:

Authorized for dry mixtures not exceeding 50 percent by weight of the liquid active ingredient:
Fiber drums (ICC–21A, 21B) not over 225 lb. net wt.

d. Amend the following items as indicated:

1. Aldrin mixtures dry, with more than 65% aldrin, etc.
2. Ammonium arsenate, solid
3. Arsenic acid, solid, etc.
4. Arsenic bromide, solid, etc.
5. Arsenic sulfide (powder) solid
6. Arsenical compounds or mixtures, n.o.s. solid
7. Bordeaux arsenites, solid, etc.
8. Cocculus, solid (*fishberry*) etc.
9. Dinitrobenzol, solid, etc.
10. *Drugs, chemicals, etc. n.o.s. solid
11. Ferric arsenate, solid, etc.
12. Insecticide, dry, etc.
13. Lead arsenate, solid, etc.
14. Mercuric compounds, solid, etc.
15. Nitrochlorbenzene, meta-para, solid, etc.
16. Nicotine salicylate, solid, etc.
17. Poisonous solids, n.o.s.
18. Potassium arsenate, solid, etc.
19. Thallium salts, solid, etc.
20. Zinc arsenate, solid, etc.

i. In columns 4, 5, 6 and 7, change "Fiberboard boxes (ICC–12B, 12C) WIC, etc." to read:

Fiberboard boxes (ICC–12A, 12B, 12C) WIC, not over 50 lb. net wt.

ii. In columns 4, 5, 6 and 7 under "Fiber drums" change "(ICC–21B) not over 200 lb. net wt." to read:

(ICC–21B) not over 225 lb. net wt.

e. Amend the following items as indicated:

Parathion, liquid
Tetraethyl pyrophosphate, liquid, etc.

i. In column 4 under "Outside containers: Steel barrels or drums," insert:

(ICC–37B) STC, not over 5½ gal. cap.

f. Amend "Poisonous liquids, n.o.s." as follows:

i. In column 1, add the following:
Mercurial liquid, n.o.s.

Subpart—Detailed Regulations Governing Combustible Liquids

24. Part 146 is amended by inserting after § 146.26–30 a new § 146.26–35 reading as follows:

§ 146.26–35 Use of power-operated industrial trucks in spaces containing combustible liquids.

(a) Any approved power-operated industrial truck (see § 146.09–15) may be used in spaces in which combustible liquids are stowed, including the handling thereof, unless otherwise restricted by regulations in this part.

Subpart—Detailed Regulations Governing Hazardous Articles

25. Part 146 is amended by inserting after § 146.27–25 a new § 146.27–35 reading as follows:

§ 146.27–35 Use of power-operated industrial trucks in spaces containing hazardous articles.

(a) *Articles of a fibrous nature.* In a space in which packaged hazardous articles of a fibrous nature are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS and DS (see § 146.09–15) may be used for handling cargo including the handling of such packaged hazardous articles of a fibrous nature.

(b) *Articles of a fibrous nature in closed vans or portable containers.* When hazardous articles of a fibrous nature are contained in closed cargo vans or closed portable containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having minimum safety features (see § 146.09–15) may be used in the spaces.

(c) *Articles other than those of a fibrous nature.* In a space in which hazardous articles other than of a fibrous nature are stowed, any approved power-operated industrial truck (see § 146.09–15) may be used to handle cargo, including the handling of such hazardous articles other than of a fibrous nature.

(R.S. 4405, as amended, 4462, as amended, 4472, as amended; 46 U.S.C. 375, 416, 170. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp.)

Dated: November 17, 1961.

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